

FLIGHT

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AND AIRSHIPS

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DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list:—

- Sept. 10. Lancashire Ae.C. Garden Party.
- Sept. 10-11. Mr. Stark's "Hangar-Warming," All Hallows-on-Sea, Kent.
- Sept. 10-23. National Aviation Day Displays. (See p. 862).
- Sept. 11. Skegness Meeting and Air Race.
- Sept. 17. Thanet Air Race, from Nethercourt Flying Ground, Ramsgate.
- Sept. 17. S. African Air Rally, Rand Aerodrome, Germiston.
- Sept. 17-25. London Gliding Club Camp, Dunstable.
- Sept. 18. Women Engineers' Flying Meeting at Stoneham Park, Southampton.
- Sept. 24. Essex Aviation Display at Hillmans' Aerodrome, Maylands, Brentwood.
- Sept. 24. No. 45 Sqdn. R.A.F. Reunion Dinner, at Overseas League Club House, Park Place, S.W.1.
- Sept. 25. Ladies' At Home at Sywell.
- Sept. 25. Yorkshire Trophy Air Race Meeting.
- Sept. 25. Gordon Bennett Balloon Race, Basle.
- Oct. 1. Bristol and Wessex Ae.C. Garden Party.
- Oct. 1-23. Berlin Sporting Flying Exhibition.
- Oct. 6. "Air Navigation." Lecture by Capt. N. Macmillan, before R.Ae.S. and G.A.P.A.N.
- Oct. 8-9. Chatham Air Display.
- Oct. 18. Aero Golfing Society: Cellon Challenge Cup, West Hill G.C.
- Oct. 20. "Flying Conditions on the West Coast of Africa." Lecture by Flt.-Lieut. W. G. Pudney, before R.Ae.S.
- Nov. 3. "Civil Primary Training." Lecture by H. G. Travers, before R.Ae.S.
- Nov. 10. "Airscrew Design." Lecture by D. L. Hollis-Williams, before R.Ae.S.
- Nov. 18-Dec. 4. Paris Aero Show.
- Nov. 24. "Evolution of Aircraft Wireless Equipment." Lecture by Sqdn.-Ldr. H. Leedham, before R.Ae.S.
- Dec. 1. "Behaviour of Fluids in Turbulent Motion." Lecture by A. Fage, before R.Ae.S.
- Dec. 8. "Air Survey." Lecture by Lieut. J. S. A. Salt, before R.Ae.S.

EDITORIAL COMMENT



GESTURE is a word which is rather overworked nowadays, but one can scarcely help using it in connection with the week-end of hospitality which a number of British flying people and firms have just extended to a gathering of Continental owner-pilots. It was more than a gesture, of course, for it was a practical expression of gratitude for hospitality which British air tourists have already received on many occasions when touring in various Continental countries. To the guests who flew over to Heston last week-end, the function probably had the appearance of an expression of warm-heartedness among all flying folk, an assertion of the principle that the air does not recognise (or at least is very loath to recognise) political boundaries, and that whatever Geneva may say about heavy bombers, flying is in reality an anti-Babel movement, which makes for the brotherhood of mankind.

The Week-end Aérien

It is only in the course of nature, at least of geographical nature, that there should normally be more British pilots flying over Continental countries than there are foreigners touring the air of Great Britain. Generally speaking, the English-speaking races are the greatest tourers. To live on an island tends to beget a seafaring race, and seafarers are *ex hypothesi* travellers. The instinct extends to all Britons, even those who live in the Midlands, while the Scots are perhaps the greatest travellers of us all. Possibly our American cousins carried the instinct with them to a country which is large enough to satisfy any desire for inland travel, and so they too come to Europe whenever their supply of dollars permits. The British live on the circumference of the European circle, and so, when they want to move, they move inwards towards the centre. The coming of the aeroplane has only intensified the British tendency to travel on the Continent.

Few Continental nations show the same love of travel. The French, for example, are intensely fond of their own beautiful country, and seem to count all time wasted which is spent outside it. We need

not marvel at this. France is a large country with plenty of room inside it, and it contains pretty well every element which can attract a wanderer. The names which the French give to their coasts exemplify this—Côte d'Argent, Côte d'Emeraude and Côte d'Azur. There is a choice which can satisfy all tastes, and over all is a climate which gladdens the heart without enervating the body. Small wonder is it if the Frenchman who rejoices in the sunshine of Dinard remains incurious as to what lies on the other side of the Channel. As for the French pilot, he has heard enough about British fogs to keep his propeller on any course rather than a northerly one. Consequently the Continentals get far more opportunity of entertaining British tourists than we get of returning the hospitality. An Italian tourist has recently written that we do not make ourselves very agreeable to foreigners who do venture into our islands. We hope that his opinion is not universal. Surely the urbanity of the British policeman, the British railway guard, and the British 'bus conductor are unbeaten anywhere. We will say nothing about the British taxi-cab driver.

For business or for pleasure it seems that the "Come to Britain" movement has to be actively stimulated. There is no natural movement in our direction from the central parts of Europe. Our business men are now trying to tempt the Continentals to spend their money in Great Britain. It was with far other feelings and intentions that Col. Sheldermine and other flying people invited the private owner-pilots of many Continental countries to accept their hospitality for a week-end. The organisers tried their utmost to give the visitors a right royal time, and the visitors seemed to think that their hosts had succeeded. It was no small matter to entertain some 60 or 70 visitors from six different countries and to deal with nearly 40 visiting aeroplanes. To see them all through Customs required some special organisation, and the supply of interpreters was another problem which had to be solved. If a forced landing took place, the hosts had to provide assistance, whatever the language of the stranded pilot might be. Everything, so far as it was possible to observe, worked like clockwork.

Anyone with money can give a good entertainment of food and drink. It is the other features of an entertainment which really count. On this occasion the hosts provided a wisely varied programme. No doubt what the visitors really wanted, once they had taken the plunge of coming to Great Britain, was to see something of Great Britain. It was inevitable, we suppose, that what they were shown had to be shown from the air. London came first, seen through the windows of *Heracles*. Personally we should have recommended twopenny rides on top of a 'bus, but that would have seemed too terrestrial. Moreover, there was not enough time. London from the air—*c'est magnifique, mais ce n'est pas Londres*. Funny little excrescences may be pointed out as the Tower and Buckingham Palace and the National Gallery, but the only things which seem of much importance are the river and the Serpentine. Still, the visitors were all airmen and airwomen, and they

were accustomed to seeing other cities from that point of view; so this item could not have been bettered in the time. Then came a really happy thought, an evening in a restaurant on the river. A summer evening by the Thames is one of the things in England which are really good, and also typical. For the next day and a-half the visitors were shown the most typical of all things British—the weather. The Thames valley, Windsor Castle, the gorge of the Avon at Clifton, the valley of the Severn, the hills of Wales, and the Mersey, are all fine sights, when they are visible, and all are typical of the beauties of England, but none of them is so typical as the weather, and weather in the English sense of the word was vouchsafed to our visitors. The beauties of the countryside were mostly veiled, but at least the foreign pilots were shown that British pilots have to learn to fly through weather if they are to get anywhere on many days of the year. Some of the wiser ones said that they had seen enough by the time they had reached Bristol, and returned thence to London where they had an opportunity of learning something more realistic than *Heracles* had been able to show them. Those who undauntedly pursued their rainy way to Liverpool and back through the Midlands learnt something about great English ports and shipping and inland manufacturing towns. They dined on a great liner in the Mersey, and there is something especially British about that. They were shown Liverpool Cathedral, an edifice of which British art is justly proud. On the way back they saw Stowe College, which gave them some idea of what were once the "stately homes of England." A very excellent function at Hanworth showed that London can boast at least three aerodromes. It may have surprised some of the visitors to arrive in England and leave it without having any dealings with Croydon, which possibly to some of them implied the whole of British aeronautics.

Some of the visitors, we believe, were making their first visit to England, and the programme gave them a very good opportunity of combining a good deal of instruction with their amusement. Had the weather been less typical, they might have seen some really fine British scenery, even though our comparatively low hills do not show to the best advantage from the air. The weather improved a good deal on Saturday afternoon, but then the tour was flying over a flat and comparatively uninteresting part of the country. At least we hope that the visitors gained the idea that Great Britain is a live and energetic country, and what they were able to see may have aroused an appetite for more. We hope that it has. It is not only for economic reasons that we want to see foreign visitors in our country. We are glad to see them, and we honestly believe that it is good for the world that they should learn something at first hand about ourselves and our island. We are conceited enough to believe that familiarity with us and with it will breed a feeling very far removed from contempt. It will lead to the making of friendships, and the more friendship there is in the world the better it will be for everybody.





A panorama showing a few of the early arrivals at Heston on the day which began the Week-End Aérien.
(FLIGHT Photo.)

The Week-end Aérien

THE critics said it could not be arranged in the time, but those who saw in the scheme a chance to raise the prestige of British private flying and to repay to some extent the debt of hospitality owed by almost every pilot who has visited a Continental flying club, said it could. The latter were right, for they did it, and, moreover, did it extraordinarily well.

The great difference between the functions during the Week-End and those so often given to people in aviation news, was the fact that on this occasion they were organised by people who fly and not merely by the hangers-on who associate themselves with such functions chiefly for the amount of publicity they get out of them. Everyone connected with that organising committee is to be congratulated; some did their share and some even more, but in the face of the general smooth efficiency it is impossible to pick out any one individual and say that the success was due to him (or her, for the ladies played their part in a no less efficient way than the men). From the start Col. Shelmerdine, our D.C.A., was in close collaboration with the Committee, and to him we owe a debt of gratitude for the time he spent on the details, and for appearing during the Week-End whenever his duties allowed him to get

away. To whom falls the honour of having first started the ball rolling it is impossible to say, but, among many others, the names of Mr. Maurice Jackaman, Mr. Ivor McClure, Mr. and Mrs. Nigel Norman, and Mr. and Mrs. Christopher Clarkson have been heard of a great deal in connection with the multitudinous amount of work which was done beforehand, and during the Week-End, in order that everything might go smoothly.

Most notable was the lack of accidents, or even of forced landings. During the whole time there were only about four very minor breakages due to forced landings, and these were in most cases repaired with commendable promptitude, either by Airwork at Heston or by the Comper works at Hooton. The weather was, unfortunately, at its worst for the greater part of the time, and it speaks well for the standard of flying of the visitors and the many British private owners who flew with them, that such a large proportion reached their objectives. The general scheme was that two or three visitors were entrusted to the navigational mercies of one of our own pilots, while other aircraft brought up the rear to descend in case of need to succour those who, for reasons of weather or mechanical necessity, had made landings between the



A Belgian pilot, M. Du Pont, in a "Boulton Paul" ("Gipsy I"), was actually the first foreign visitor to arrive, but he was too early to gain the Cup for the arrival competition. He is seen on the right with his passenger, M. Abeele (r). (FLIGHT Photos.)



Mr. Skorzewski in a "Moth" ("Gipsy I") was the actual winner of the arrival competition, and he is here seen receiving the Cup from Col. Shelmerdine, the Director of Civil Aviation. (FLIGHT Photo.)

various aerodromes. In this manner no visitors were ever left without the immediate help of their hosts. Moreover, in order to assist their navigation, they were each given a specially prepared map having all the necessary courses marked upon it. The supply of these maps was entrusted

for all at the May Fair Hotel.

After a delightful lunch, prepared under the direction of Miss Slade, the Secretary of the Airwork Club House, the majority of the visitors were taken for a joy-ride over London in the "Heracles," sent over by Imperial Airways



The winner of the Cup for the second arrival was M. Seligman, who with Mme. Seligman flew over from Paris in this Farman 198 (Renault 215). (FLIGHT Photo.)

to the aviation department of the A.A., and, needless to say, Mr. Ivor McClure's department responded in its usual efficient manner.

Quite a large crowd gathered at Heston on Thursday afternoon, September 1, to await the first arrivals, who were due at noon. A large silver cup was given for the first pilot to arrive after noon, and this was won by Mr. Bernard Skorzewski, who with his wife had flown from Poland in a "Moth" (Gipsy). Mr. Skorzewski (not Count, as the daily Press would have him, presumably because, as he was not English, they were not able to give him their usual pilot's title of Captain!) was greeted by Col. Shelmerdine and Mr. Norman, the latter as Chairman of the Hospitality Committee.

The second to arrive, and who also received a cup, was M. Seligman, who with Mme. Seligman came from Paris in a Farman 198 (Renault 215). The third was M. Jean Stampe, of Belgium, who together with his wife had flown

and flown by our old friend "Jimmy" Youell. Several of the visitors to whom we spoke were enthusiastic over the comfort offered in this class of aeroplane, and all seemed to agree that they had never before found flying so completely enjoyable.

The remainder of the day's programme included a recep-



Another arrival at Heston was M. Frederic Jamar, who, as can be seen from the illustration, hails from the Belgian Congo. (FLIGHT Photo.)



Fräulein Elly Beinhorn (left) arriving with Fräulein S. Mirow in one of the new Heinkel's. (FLIGHT Photo.)

tion by the British Aviation Hospitality Association, at which the guests were received by Lady Simon, and a dinner and dance at Poulsen's Club on the river at Datchet. As the evening wore on it became evident that the right bug had infected the party, for they soon, "so to speak," got going, and enjoyed themselves in a thorough mixing without much persuasion from the Committee. As a place for an evening's entertainment the Club is excellent, and the proximity of the river undoubtedly helped in no small measure. The electric canoes were in great demand. No sooner did one return to the landing stage than a new "crew" took it over. The intricacies of the motor baffled at least one English pilot, however, who, being more familiar with Gipsy III engines, had omitted to get his Ground Engineer's licence for this type of propulsive force. Anxiety was felt for some time over his failure to arrive back, but as he had many times proved himself a most excellent navigator, he was "left to it." We understand that he eventually returned triumphantly in the small hours.

On the right is a table of those foreign visitors who reached Heston.

The next day dawned foully, and it was soon evident that, that notoriously sticky trip to Bristol, was to be even stickier than usual. Conditions became even worse when we got beyond Bath, and we blessed the wide comfortable cockpit of the "Bluebird" (Hermes II), which enabled us to handle our maps with ease despite the wind and rain. On the way down two German "Klemms" took station on us, but one of these thought better of it and returned, as we heard later, to Reading. The other hung on grimly and trustingly until within a few miles of the aerodrome, when he decided that we were too far south, and so shot off into the mist, out of which he did not arrive to land for another ¾ hr.!

At Bristol we were all guests of the Rt. Hon. the Lord Mayor of Bristol and the Bristol and Wessex Aero Club, at a lunch served in the Airport Hangar. The Lord Mayor (Ald. J. H. Inskip) offered an apology for the weather, and said that it was a triumph on the part of the visitors that such a large percentage of starters had reached the aerodrome. (Only a few forced landed or turned back, and of these

Pilot and Passenger	Machine No.	Name of Machine (Engine)
FRANCE		
Fdouard Brett	—	F-AYZB Moth (Gipsy II)
Helene Boucher	—	G-ABLF Avian (Hermes II)
Marcel Bleustein	Mme. Bieustein	F-ALUS Caudron C 270 (Salmson A.C. 7
Roger Seligman	Mme. Seligman	F-ALUZ Farman 198 (Renault 4P.b.)
Pierre Delloye	—	F-ALOG Potez 36 (Renault 4P.b.)
Jean Lietard	Mme. Lietard	F-ALFU Potez 36 (Salmson A.C. 7)
Marcel Gallot	Mme. Gallot	F-ALVK Caudron C 270 (Salmson A.C. 7)
R. Gerard	Miss Southwick	F-AJYK Caudron (Renault 4P.b.)
Docteur Jules Crochet	—	F-ALIT Potez 36 (Salmson A.C. 7)
Comte de Clermont-Tonnerre	Baron de Foucaucourt	F-ALCP Farman 231 (Renault 4P.b.)
GERMANY		
Leo Lammertz	Fräulein G. Wirtz	PH-AGN Pander (Gipsy I)
Karl Winkler	Kurt Bruegman	G-ABVZ Bluebird (Gipsy II)
Julius Schultz	Fräulein Tresckow	D-2255 Klemm (Siemens S4.14)
Theo Niehues	Adolf Wegenast	D-2091 Klemm (Argus As. 8)
V. Winterfeldt	J. Jansen	D-2212 Klemm (Argus As.8)
Baron von Dungen	H. Beese	D-2302 Heinkel (Argus As.8a)
Hans Seidemann	Hugo Witt	D-2260 Heinkel (Argus As. 8a)
Hans von Cramon	V. Salamon	D-2301 Heinkel (Argus As. 8a)
Fräulein Elly Beinhorn	Fräulein S. Mirow	D-2304 Heinkel (Argus As. 8a)
BELGIUM		
M. Joseph du Pont	M. Abeele	OO-ALY Bulte Sport (Gipsy I)
G. R. Hansez	Mme. Hansez	OO-AKG R.S.V. (Gipsy III)
Jean Stampe	Mme. Stampe	OO-ADG Moth (Gipsy I)
Pierre Osterrieth	Ch. Prion	OO-AMT St. Hubert (Renard 120)
Frederic Jamar	T. Mestreit	ZS-ACZ Moth (Gipsy I)
J. Maus	Ctesse de Looz Corswaren	OO-AKH St. Hubert G.I (Walter Vega)
Jean de Keyu	R. de Caritat	OO-AMM Moth (Gipsy I)
G. Hanet	Mme. Horn	G-AAGA Puss Moth (Gipsy III)
Lucien Jansen	Louis Enthoven	OO-AMO Moth (Gipsy I)
HOLLAND		
M. A. G. van der Leeuw	Miss T. Basilowitch	PH-MAG Puss Moth (Gipsy III)
Teu Bos	—	G-ABRC Tiger Moth (Gipsy III)
R. van Romunde	Miss J. Jantzen	PH-AKA Pander (Walter Vega)
P. H. Repelaer	Von Groenewont	PH-AEX Pander (Walter Vega)
Schmidt Crans	C. Kolff	PH-AFM Pander (Gipsy I)
C. van Nierop	—	PH-AIA Pander (Walter NZ VII)
POLAND		
B. de Skorzewski	Wanda de Skorzewski	SP-AHD Moth (Gipsy I)
Rogalski	Count Czarkowski-Golejewsk	SP-AGJ R.W.D.5 (Hermes II B)
GREECE		
A. Meccas	—	F-AJRS Coupé Moth (Gipsy I)



This St. Hubert of M. Pierre Osterrieth was one of the best finished foreign machines to come over. (FLIGHT Photo.)



Herr Wegenast, President of the Düsseldorf Aero Club, talking to Mr. Nigel Norman after landing at Heston. His pilot is Herr Niehues. (FLIGHT Photo.)

several went straight on to Liverpool.) He also felt that an occasion like the present did more to cement the cordial bonds of friendship of international aviation than did even the display given by Sir Alan Cobham, whom they had recently been pleased to welcome at the Airport. He drew attention to the presence of Sir Stanley White, whose father, Sir George White, had done so much to keep Bristol in the forefront of aviation. Others present at the lunch included:—The Sheriff of Bristol, Mr. S. Genge; the Chairman of the Airport Committee, Ald. S. A. Sennington; and Capt. L. P. Winters, the manager of the Airport.

After lunch there was much speculation about the

probable weather farther north. Some of the visitors elected to spend the night at Bristol, and rooms were accordingly arranged for them to their liking at the Grand Hotel. Others set off to fly to Hooton, and of these some three or four were forced down, without any serious consequences, *en route*.

We ourselves had a consultation in a Shell petrol lorry—one of the few dry spots on the aerodrome—with our fellow-sufferer, Flt. Lt. Allen, and then decided to try it. We did, and wished we hadn't. We think we got it worse than anyone; others think they did! Anyhow, the visibility from Bristol to Gloucester was nil, and if there had been more than one big river, and more than one straight railway, we should doubtless have finished up in the North Sea. However, after Gloucester we were able to see quite well, and all we had to do was to point the "Bluebird" about 45 deg. towards the wind and "wrestle" for the best. We won, but decided that flying was a "mug's game." Hooton was very welcome after that flight, and the efficient arrangements of "Bill" Gairdner, of Brian Lewis & Co., and Maj. Thornton, Chairman of the Liverpool and District Aero Club, soon made us feel in a better frame of mind. Not even a leak in our petrol tank could spoil the pleasure we felt of our reception. Almost before we had finished cursing our luck, the sympathy of the Comper Aircraft Works had been enlisted and the tank was well on the way to being mended.

Coaches were provided to take us round to Liverpool, and by this means our foreign visitors were given a view of the Mersey with all its shipping.

Accommodation had been arranged at the Adelphi Hotel, with dinner to follow on board the s.s. *Adriatic*, a White Star liner of some 24,700 tons. The guests were honoured by the presence of the Captain of the ship, and although the staff must have been greatly inconvenienced by the delay of over an hour caused by the weather, they put up a most excellent and enjoyable repast.

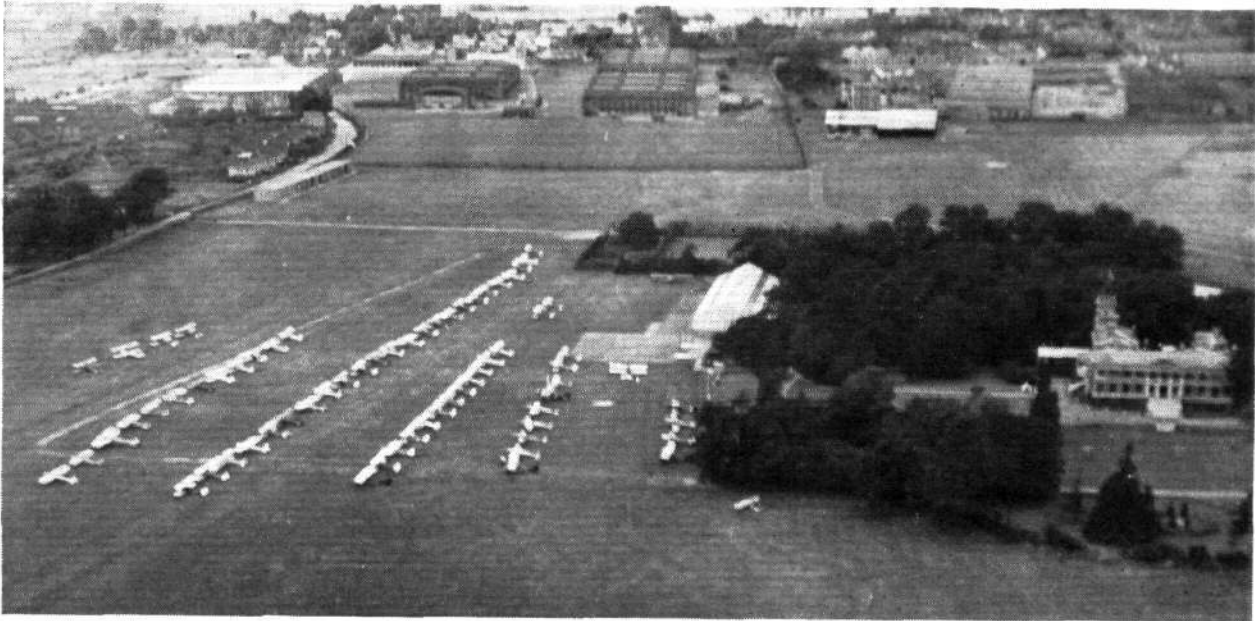
After dinner the coaches once more took the party back to Liverpool, where they attended a dance given by the Lord Mayor in the Guildhall.

The following morning, having regard for the lateness of the party the previous evening, the coaches did not leave for Hooton until 11.0 a.m., and by the time they arrived at the aerodrome all the machines had been parked out in convenient rows. That handling party must have worked hard, for there were nearly 60 aircraft there, and besides that they had their own machines to prepare for the Liverpool-Manchester Race the same afternoon!

The Liverpool and District Club had laid out a tasteful lunch table for all the guests, and this was well patronised



Sir Frederick Bowring shaking hands with Herr von Cramon and talking to a group of the other German, Heinkel pilots on their arrival at Hooton. On the left of the picture is the Mayor and Mayoress of Wallasey and the Mayor of Birkenhead.



The excellent parking arrangements made for the 60 odd visitors who arrived for lunch at Hanworth on Sunday is seen in this aerial view.

before they left. Their going was to a certain extent encouraged because weather reports showed that conditions were likely to get worse.

The programme allowed for tea to be taken at either Ratcliffe or Coventry, and some went to one and some to the other, but many went direct to Heston. The trip down was not so bad. The visibility was good, and we hope that many of our visitors were able to get good views of the old country houses about which they constantly asked us, while at least one public school—Stowe—which is well worth seeing, lay right on the route from Coventry to Heston.

On arrival at Heston we found that most of those who had fallen by the "airway-side" the previous day had now found their way back, and the one or two machines which had been "bent" were in the workshops receiving treatment.

The final dinner, dance and cabaret which followed at the May Fair was certainly another credit to the Committee. Their artistic minds running on civil aviation had induced the management of the hotel to decorate the room with Civil Air Ensigns and, moreover, to have all the table cloths and table napkins dyed the same blue as the body of the flag. This, coupled with the blue flowers which adorned every table, pleased all the visitors and set them in the right humour to enjoy the whole evening. The dinner itself was good, and the first oysters of the season were much appreciated. Sir Philip Sassoon was in the chair, and after the Royal Toast he announced a message from the Prince of Wales, who sent his good wishes to the visitors and expressed the hope that all would spend an enjoyable and interesting week-end. A message of greeting was also read out from the Anglo-German Club in London.

Sir Philip made an extremely appropriate speech, not only in English, but also in French and German; much to the delight of the guests. He referred to the stress and turmoil of war in which flying grew up, but felt sure that it was destined now to turn into one of the mightiest agents of peace and goodwill. Anything, therefore, like this Week-End, which brought together pilots of all nations, was to be encouraged, and he hoped that many friendships would be made during this time. In concluding, he congratulated Mr. and Mrs. Norman and the rest of the Committee on the success of their efforts.

The toast of "Our Guests" was replied to by representatives of most nations present. Mr. Skorzewski, speaking in excellent English, spoke of the pleasure he and his wife had had in winning the Arrival Cup, and said that it was the first time such a cup had ever been won without any struggle at all—but the struggle was only deferred, as it came later during the flight to Bristol.

M. Seligman, who, from the hands of Sir Philip, received the cup for second arrival, said that their reception had been wonderful, more so than they had ever experienced.

Herr Wegenast, on behalf of the German pilots, speaking in German (his speech afterwards being translated by Fräulein Elly Beinhorn), expressed the sincere regrets of Herr von Hoepfner, the Vice-President of the German Aero Club, for not being able to come over as he had hoped. He thanked the organisers for the splendid time which had been given the guests, and hoped that the friendship thus begun between the pilots of all nations would be extended, and that another similar gathering would be arranged. A toast to the organisers was then drunk in typical German fashion.

Mr. Kolf, President of the Rotterdam Aero Club, also expressed his appreciation of the way they had all been looked after, and said that their every wish had been fulfilled before it had been formed. The only department, he said, of the organisation which had let the organisers down had been the weather department, and he spoke admiringly of the British pilots who had helped the Dutch pilots during that part of the trip; in asking the guests to drink to their English friends he particularly wished to couple with them the names of the lady organisers.

Belgium was represented by M. Jamar, and he also spoke appreciatively of the help and attention they had all received, particularly did he wish to mention Ratcliffe, where Miss Spooner had produced lunch at tea time to allay their pangs of hunger.



On the Thursday afternoon even the large seating accommodation of the H.P.42 "Heracles" was unable to cope with the demand for tea flights over London by our enthusiastic visitors. (FLIGHT Photo.)

Mr. and Mrs. Norman were both prevailed upon to say a few words, and on behalf of the British pilots returned thanks for all the nice things which had been said about them. Mr. Maurice Jackman then announced the start of the cabaret.

Mrs. Norman received a surprise, as the most beautiful bouquet was presented to her by the foreign visitors as a token of their appreciation of all that the ladies of the Committee had done for their enjoyment.

The next morning, weary but certainly not ill-at-ease, some 60 odd pilots once more started up their engines, and, following the careful directions given in their programme, flew on a magnetic bearing of 193 deg. for 4.75 kilometres to Hanworth Park. Here, as usual, everything was most efficiently arranged, and Col. the Master of Sempill and Flt. Lt. Max Findlay, the Chief Instructor, are to be congratulated for the way they attended to the wants of the many visitors. As our photograph shows, the aircraft were all parked in easily-get-at-able lines, each of which was headed by an N.F.S. Desoutter as a sort of mark buoy. Interpreters were there in plenty, and with very little delay the whole party was entertained to a most appropriate Old English lunch. Whoever had the idea of providing ancient but delectable dishes like Salamagundy and Herb Soup deserves the very heartiest congratulations, for no more fitting conclusion to the many functions the party had been given could have been thought of.

After lunch the party left for Lympne, where a flying meeting was in progress. There they were entertained to tea and cocktails before starting their homeward journey.

We cannot finish the story without some mention of the various aircraft in which our guests arrived. These included, as will be seen from our table, a wide variety, and some had never been seen in this country before.

Naturally, interest centred around the new Heinkels (fully described on pages 848-850), but there were also others perhaps even more suitable for private owners. After all, the Heinkels were only built to win the *Rundflug*, and as such were naturally designed in the light of the rules regulating that contest, a state of affairs which does not necessarily mean that the result is ideal for the average private owner.

One of the best-finished aeroplanes was the St. Hubert OO-AMT, flown over by M. Pierre Osterrieth. This is a new version with a Renard 120 engine, and is really beautifully finished. The upholstery is quite up to the average motor car standard and equal to the best of our own

aircraft, while the finish of the outside of the fuselage and wings is far better than we usually find on Continental aeroplanes. The Caudrons did not somehow impress our pilots, as they looked rather clumsy, but quite probably their looks belied them, and they were simply of somewhat more than usually heavy construction. The little low-wing Farman, which the Comte de Clermont-Tonnerre had the misfortune to crash at Hooton, looked definitely a dangerous aircraft, and one who has flown it tells us that although the landing speed is low, it loses all control very suddenly. In fact, to use popular parlance, it is not by any means a "boy's aircraft." Luckily, M. de Comte did not injure himself or his fair passenger, and we trust that he will have a more successful return journey after the machine has been repaired.

The various Panders looked workmanlike and well built, but mostly somewhat under-powered. They appeared, however, to handle nicely and to land easily, in spite of the extremely gusty weather which was encountered throughout the trip. Of the "Klemms," little need be said. They are well known as admirable and safe private owners' aeroplanes, and when fitted with an engine like the Pobjoy, such as the model owned by Mr. Tony Gibbons, they must be among the easiest to fly, and particularly to get in and out of small fields, that have yet been designed.

The R.W.D.5, with the Hermes IIb, is Mr. Rogalski's idea of a small enclosed cabin aircraft, and this particular model won the round-Poland flight of last year. Mr. Rogalski, who was a somewhat late arrival, is the R. of R.W.D., and as such was also responsible for the R.W.D.6 which was piloted to victory in this year's *Rundflug* by F. Zwirko.

In conclusion, let us hope that a gathering like this will become an annual affair. It might perhaps with advantage be arranged to coincide with the R.A.F. Display at Hendon, or at least with one of our largest private flying meetings, so that the general public could see the foreign machines without other special arrangements having to be made. A special enclosure at Hendon would surely be a graceful gesture, as would lunch in the R.Ae.C. tent, and what could be more fitting than that our guest should be invited to the S.B.A.C. show, which would seem likely to become an annual event. Anyhow, the Week-End Aérien was a great success, and no one can say that any foreigner went away dissatisfied with the hospitality he received.

C. N. C.



The visitors grouped for a photograph after lunch at Heston on the first day of the week-end. (FLIGHT Photo.)



Group Captains' Retired Pay

THE Air Council have had under consideration the scheme of retired pay of group captains of the general duties branch, and have concluded that, as the retirement policy applicable to these officers is similar to that applicable to air officers, the retired pay scheme for the rank should be similar to that for air officers. They have, therefore, decided that the retired pay of group captains of the general duties branch shall depend, not as in the past upon age and service, but upon rank and service as is the case with the retired pay of air officers.

The new scale will be £615 for 20 years' service, increased by £15 for each additional year beyond 20 up to a maximum of £800. The minimum period of service qualifying for group captain's retired pay will be three years in the substantive rank on full pay; officers with less service as group captain will receive retired pay as if their service in the rank of group captain had

been given in the rank of wing commander, unless the Air Council otherwise direct. The new scale will apply to all officers promoted to the rank of group captain after the date of this order; group captains already serving as such will have the option of drawing retired pay either under the old or the new scale.

R.A.F. Prize Cadetships

THE Air Ministry announces:—

The Air Council have awarded Prize Cadetships, each of the value of £105 per annum for two years, to the following successful candidates at the examination held in June, 1932, for entry into the Royal Air Force College, Cranwell:—

D. G. Stokes, Rossall School; R. J. Burrough, St. Paul's School; P. D. W. Hackforth, Oundle School; E. E. Vielle, Dulwich College; J. R. Jeudwine, Sherborne School; and R. C. F. Lister, Cheltenham College.

Private Flying and Gliding

THE MANCHESTER—LIVERPOOL RACE

THOSE who arrived early at Hooton Aerodrome on Saturday, September 3, were privileged to see something rather unusual—the spectacle of nearly 60 aeroplanes of many different types, foreign and British, lined up in front of the clubhouse. Between 1 and 2 o'clock our welcome, but luckless, foreign guests were setting off for another battle with our choice English weather, *en route* for Leicester and Coventry.

Wild squalls of rain swept the aerodrome, and a wind of 50-60 m.p.h. at 1,000 ft. was reported; however, visibility at the start (3 p.m.) was quite good.

This year the start of the race was most praiseworthy prompt. The 15 entries, amongst which were to be seen three of the red-nosed Northern Air Transport machines and two machines entered by Lewis's, of Liverpool and Manchester, respectively, all turned out despite the weather. The starting times are shown in the table, but for safety in taking-off from Hooton R1, ZU, UU and ME were delayed slightly, the delay being made up in fixing starting times at Barton.

In bright sunshine the first five machines—all Cirrus "Moths"—took off in quick succession; then came a pause of almost 5 min. before the two "Gipsy Moths" and the "Gipsy Avian" were away. It was nearly 10 min. before the "Swifts" began to go, and the small but enthusiastic crowd was openly pitying WH and WW, the "Gipsy Swifts," which had still another 10 min. to wait after the rest were off.

There was no attempt this year at any display apart from the race itself, so that from 3.30 to 5.0 the spectators had nothing to do but to indulge in tea and talk.

The course this year was reversed, the competitors making for Huyton, Southport and Barton, and in the second half from Barton to Woodford and back to Hooton. News was slow in coming through from Southport and Barton—it seemed a pity that there was no arrangement made for announcing the progress of the race.

At Southport, Grenfell's "Avian" had passed Wilson in LA and Selway in OY had passed them both, while Walker's "Swift" had moved up two places and Comper had overhauled Styran. The "Swifts" were fancied for the race, especially in view of the bumpy weather and the head wind on the last lap, from which they would perhaps suffer less than the others.

At Barton, where the clouds were low and the wind came in fierce gusts, landing was unpleasant, and Grenfell had



Flt. Lt. N. Comper receiving the Cundiffe Trophy from the Lady Mayoress of Liverpool, after his winning the Inter-City Race on Saturday, September 3.

the ill-luck to damage his propeller. But a telephone call to Hooton brought Mr. "Bill" Gairdner (of Brian, Lewis & Co.) over by air with a new prop., which he proceeded to fit just exactly in time for VL to take off at the fall of the flag!

At 5 o'clock a plane was sighted, coming high—but it turned out to be a stranger who appeared to find satisfactory contact with Mother Earth difficult to establish! It looked as if landing at Hooton was not going to be too pleasant.

However, the visitor was safely out of harm's way before, in the teeth of the worst squall of the afternoon, the first competitor crossed the line at 5.08.47 p.m.—Flt. Lt. Comper "borne upon the wings of thought"—his own thought materialised into the fastest light aeroplane in the world! and thus winning the race on his own aerodrome. (The Comper "Swifts" are built in Flt. Lt. Comper's works at Hooton.—ED.)

Twenty-eight seconds later dear seven-year-old MQ swooped over (28 sec. difference between the first and last starters!), followed almost at once by Cantrill in ME, and in quick succession the "Swifts" UU, WH and UA. ZF (the "Swift" entered by Lewis's, of Liverpool, and flown, owing to the indisposition of the chief instructor, by the Club's assistant instructor) came next, but later a message from Barton revealed that owing to having been started 1 min. 35 sec. late there, it had actually gained the second place.

ZC followed, with a flapping locker lid—it speaks well for Comper construction that it was not wrenched clean off in such a wind!—but it had spoiled ZC's promising chance of a good position.

After OY and VL (10 machines in 5 min.); there was a gap of 5 min. before the last five machines followed one another home. What splendid handicapping—and what excellent work on the part of the ground staff. Volunteers for wing-tips were much in demand and were fortunately forthcoming, though no official arrangements for this appear to have been made.

Immediately after the race Maj. Thornton, Chairman of the Liverpool Aero Club, announced the results, and called upon the Lady Mayoress (who, with the Lord Mayor, had consented to

Aircraft and Engine		Pilot	Starting Time	Speed	Final Place
			m. s.	m.p.h.	
G-EBMQ	Moth II (Cirrus II) ..	Hall (M) ..	0 00	89.75	3
G-EBRI	Moth X (Cirrus II) ..	Smithers (M) ..	0 00	74.25	15
G-EBST	" " " " ..	Holmwood (M) ..	0 44	76.00	14
G-EBZU	" " " " ..	Bonar (M) ..	0 44	78.25	12
G-EBWA	" " " " ..	Radley (M) ..	0 54	80.00	11
G-AALA	" (Gipsy I) ..	Wilson (L) ..	5 24	83.00	13
G-ABVL	Avian (Gipsy I) ..	Grenfell (L) ..	6 01	92.25	10
G-ABOV	Moth X (Gipsy I) ..	Selway (L) ..	6 37	94.00	9
G-ABUA	Swift (Pobjoy "R") ..	Crossley (N) ..	16 11	114.75	7
G-ABUU	" " " " ..	Lacayo (M) ..	16 11	115.00	5
G-AAZC	" " " " ..	Walker (L) ..	16 48	114.50	8
G-ABME	Avian (Genet-Major) ..	Cantrill (M) ..	16 48	117.00	4
G-AAZF	Swift (Pobjoy "R") ..	Higgins (L) ..	17 01	119.25	2
G-ABWH	" (Gipsy III) ..	Styran (N) ..	26 22	142.25	6
G-ABWW	" " " " ..	Comper (L) ..	27 18	149.75	1

M.—Manchester.

L.—Liverpool.

N.—Neutral.

be present) to present the prizes—the Cundiffe Trophy for the winner, and the Fylde Cup, for the first man living within 25 miles of either city to get home, going to Flt. Lt. Comper (Comper "Swift," Gipsy III engine), while for the first time since the inauguration of the race in 1929 the Reynolds Cup went to Manchester, the team consisting of Hall on MQ (Cirrus "Moth"), Cantrill on ME ("Avian," Genet Major), and Lacayo on UU (Pobjoy "Swift"), who were respectively 3rd, 4th and 5th.

The winning of the Reynolds Cup by Manchester means presumably that next year the race will be organised from Barton—which will be a relief to many who do not altogether like the idea of the Mersey Estuary crossing at start and finish. An engine failure within 2 min. of the finish to-day, flying at full throttle, 10 ft. above the river in a line squall, might have proved slightly awkward!

N. G.

HANWORTH NOTES

The weather has been excellent for flying throughout the week, and all the Club machines have been busily employed. During the heat-wave a large number of members made trips to the sea. Several members have begun dual instruction, among them Lord Ratendone, Mr. G. Murdock and Mr. J. Liddell. Mr. J. Hill has successfully passed all the Air Ministry tests for his "B" licence.

On Monday Mr. E. Ramsey Green flew to the Isle of Wight, and there was an air-taxi trip to Croydon to collect Lord Ratendone. Flt. Lt. M. H. Findlay flew Mr. Walker's Comper Swift from Hanworth to Aberdeen, accomplishing the trip in 3 hr. 40 min. in spite of adverse conditions. He returned on Thursday in 3½ hr.

On Wednesday night, and in the early hours of Thursday morning, night-flying instruction was given. The following day Mr. J. Beard did a taxi trip to Birmingham, and Mr. J. Hill accomplished the night-flying test from Croydon to Lympne, Miss M. Neison also passing this flying test the next night. Both these tests were done on N.F.S. machines.

On Saturday Flt. Lt. M. H. Findlay flew on a taxi trip to Deauville, and Capt. Wilson to Shoreham.

LONDON AEROPLANE CLUB

Any member holding a current "A" licence who desires to apply for a commission in the Royal Air Force Reserve of Officers should apply to H. E. Perrin, Secretary of the Royal Aero Club, 119, Piccadilly, W.1. The age limit is 31 years.

Mr. H. L. Salmon, who recently returned from trapping in the Arctic, has successfully passed his tests for the "A" licence.

Several of the pupils are rapidly approaching solo stage, and a good crop of "A" licences are to be expected next month.

The club has been without the services of its Chief Instructor, Major Travers, who has been taking his holiday during the last fortnight in August, but his place has been filled very adequately by the second instructor, Mr. Tangye.

For the year ending July 31, 1932, the Club obtained 47 new "A" licences and 3 "B" licences—an average of practically one per week throughout the year.

Among the new members who have joined the London Aeroplane Club in the last week are H.H. Prince Eugène de Ligne, who is a distinguished member of the Belgian Corps Diplomatique, and is already well on the way to being able to fly his "Fox Moth," and Dr. H. A. C. Gregory, who has taken delivery of one of the new "inverted Gipsy Moths" and is putting in many hours on it.

The Club has now reverted to the normal routine after the holidays, and will be open every day of the week again.

THE HERTS AND ESSEX AEROPLANE CLUB

The Club have recently acquired a further "Gipsy Moth," G-AAAO, and the membership has now reached the satisfying figure of 250.

During June the hours flown totalled 280, whilst during July the time reached exceeded 300 hr. Thirteen members of the Club have been sent off "solo" during the last six weeks, including Vic. Huxley, Capt. of the Australian Speedway Test team, W. Kilmister and S. Catlett, also Australian speedway riders, G. A. Vigil from Peru, A. Harris from New York, S. Herbert, the Club's ground engineer, and Messrs. Parker, Burge, Norman, Hunt, Proctor, Cox and Lindy.

The Club now numbers among its members six private owners, whose machines are all kept and serviced at Broxbourne.

The directors of the Herts and Essex Aero Club, Ltd., wish it to be known that they have no connection with an organisation known as the "London Air Circus," which has been stated to have its headquarters at Broxbourne Aerodrome, Nazeing, Essex.

NEW FLYING CLUB FOR NAGPUR

A move is afoot to start a flying club in Nagpur, the capital of the Central Provinces, in the near future. Nagpur is regarded as an ideal place for this purpose, not only because it happens to be centrally situated, but also because it enjoys suitable climatic conditions, throughout the year. Intercommunication with other flying clubs in India is going to be a feature of the project. The question of constructing an aerodrome in Nagpur has been before the Government of India since 1918, in which year they had deputed some experts to select a suitable site for the purpose. A representative of the Aviation Department of the Government of India is going to visit the place shortly. When the scheme assumes a concrete shape, the Nagpur Flying Club is expected to receive a substantial grant from the Central Government.

SEQUEL TO A POLICEMAN'S JOYRIDE

There was a sequel to a policeman's joyride in the Cork District Court recently when Mr. G. C. Bateman, of Bandon, County Cork, an air pilot, was fined forty shillings on each of four summonses and ordered to pay forty shillings costs. The charges were, that the defendant carried passengers in his aeroplane for hire or reward; that the place used was not a licensed aerodrome; that the defendant acted in the capacity of a pilot without holding a licence; and that the aircraft had not been inspected and certified within a period of 24 hours before the flights. Police officers gave evidence that they went to the place where the flights were advertised, the advertisement stating that anyone who bought a postcard for five shillings would be given a free flight. They bought cards and went up with the defendant, who was the pilot. Mr. H. D. McClenaghan (Aviation Section, Department of Industry and Commerce) told the Court that no licence had been issued in regard to the field, pilot or machine. The solicitor for Mr. Bateman pointed out that up to May of this year his client had flown 220 hours and had never had an accident.

IRISH AERO CLUB

A new development by the Club to popularise flying in the Irish Free State are small air pageants organised at country towns. The first of these has just been held at Athy, County Kildare, and proved very successful. The Lord Mayor of Dublin, Alderman Byrne, flew to the meeting in one of the Club "Moths" and later returned to the city in the same manner. The majority of members made the forty-mile journey by road and during the afternoon took part in the several aerial contests arranged. "Bombing the Baby" was an event open to all comers, and it was nearly dusk when this event was completed. The final has yet to be flown off. On the return journey to Dublin darkness fell before the last of the machines could reach Baldonnell, so it was landed at a private aerodrome at Bishops court and pegged out for the night. The next pageant is expected to take place at Kilkenny on September 11. The Dublin offices of the Club have now been transferred to 57, Upper O'Connell Street.

CINQUE PORTS FLYING CLUB

The first day of the Lympne meeting was cancelled on account of the weather, but Sunday dawned fine and clear, and every available machine set off in formation to show the neighbourhood that there was something on at Lympne. The joy-riding machines were kept busy the whole day, Miss Aitken's "Moth" doing some 40 odd trips, and the Club machines nearly 60 between them. In addition, the Spider was up and down nearly all day.

The "Arrow Active" was most ably put through its paces by Mr. Thorn, of Brooklands. Mr. Gibbons gave us an excellent idea of the capabilities of the "Pobjoy Klemm," whilst Flt. Lt. Russell emulated the "Autogiro's" hovering to perfection in the "Redwing." Flt. Lt. Clarkson gave his usual polished performance in a "Gipsy III Swift," whilst Mr. Brie in the Autogiro did his "stuff" to the great entertainment of everyone present. The success of the afternoon, however, from the public's point of view at any rate, was the bombing, by three machines, piloted by Capt. Duncan Davis, Mr. K. K. Brown, and Mr. Ken Waller of a boot-legger caught in the act of running some rum (at least, the barrels were

labelled "rum"! The ship took to sea at once, in the hope of dodging its pursuers, but in spite of their most crafty efforts the law-breakers were not able to evade the Excise men altogether, and after several direct hits had been scored the order to abandon ship was given.

The arrival of the foreign pilots was greatly appreciated by the crowd, even if it did somewhat delay the programme.

GLIDING COMPETITIONS

The British Gliding Association, after being held up for three days in their competitions at Moorside, Askham, near Barrow, owing to bad weather, got to work again on September 4.

In the face of a 50-miles-an-hour gale Mr. Slingsby, in his British Falcon, and Mr. Dent with Mr. Buxton as a passenger, in his two-seater, were hauled off and kept the air for 2 hr. In the afternoon the wind went down very much, and Mr. Buxton, on Mr. Slingsby's British Falcon, took off at five minutes to 3 with a view to reaching Coniston 10 miles away. He had a steady breeze and he was watched with interest as he went up the Duddon Estuary and disappeared from sight. Later a telegram was received at Furness Abbey stating that he had safely landed in his British Falcon at 5.40 at the north end of Coniston Lake. This is a distance record for Great Britain.

YORK COUNTY AVIATION CLUB

On September 25 the York County Aviation Club will hold a flying meeting under the title "Yorkshire Trophy Meeting." The main event will be a race of about 200 miles with a first prize of a Cup (the Yorkshire Trophy), valued at £50, and £50 in cash; the second and third prizes will be £30 and £15 respectively.

A short two- or three-lap race of a total distance of about 15 miles will be run after the finish of the big race, with suitable cash prizes.

SKEGNESS

The Skegness and East Lincs Aero Club will be holding a small Air Display on Sunday, September 11, when they will have a 30 mile air race, for which a Silver Cup, and £10, and valuable second and third prizes will be given. All visiting pilots will be the guests of the Club for lunch and tea, and it is hoped that as many as possible will attend. During the afternoon and evening an ox will be roasted whole on the aerodrome, and the proceeds of the sale of the roasted beef will be given to Skegness charities.

THE MONTH AT YEADON

During the first part of August the Yorkshire Club has had record attendance. A total of eighteen hours' flying was recorded. During the second half of the month the weather has been somewhat stormy, but a high average of flying hours has still been maintained. Six new members have joined the Club.

Mr. J. C. Macalpine's new Autogiro has provoked much interested comment. He has made several cross-country flights on it, and intends shortly to fly to London.

THANET AIR RACE

The active co-operation of Grp. Capt. Sidney Smith and other officers at Manston R.A.F. Station has been secured for the second air race round Thanet for the Vye Cup (value £50) and 25 guineas added, which will take place from Nethercourt Flying Ground, Ramsgate, on Saturday, September 17.

The race, which is for light aeroplanes, will be three laps of a course of approximately 25 miles.

Entry forms, map of course, and full particulars can be obtained from the secretary, Mr. Harold White, 24, Warten Road, Ramsgate.

READING NOTES

Mr. C. W. Scott, a private owner at the Phillips & Powis School of Flying, has now completed all arrangements for his return flight to Burma next week. He intends doing the 6,800 miles in seventeen flying days, averaging 5½ hr. a day. A lot of useful information concerning the different routes and suitable halting places has been obtained, and the Club would be pleased to assist any private owner who is thinking of flying to India or Burma.

Mr. H. Sear, an old pupil, who came over from Nairobi last February, started last Wednesday on his return trip to Kenya in his new "Gipsy III Moth" (illustrated in FLIGHT, August 26).

Mr. H. Ivan Fisher, home on leave from Egypt, made a very satisfactory parachute descent last week.

Among the numerous soloists is Mr. Dumoulin, a Dutchman, who is returning shortly to Rotterdam, after having obtained his "A" licence.

The sales department have been successful in disposing of the metal "Gipsy Moth" to Mme. Madeline Charnaux, of Vichy, France. This is the second French sale within the last month, which goes to prove that English light aircraft are becoming very popular in France.

MAIDSTONE AERO CLUB

Maidstone Aero Club have now started night flying. A series of navigation classes have now been commenced, and will continue throughout the winter. Ground engineering and "B" licence classes are being started very soon.

All those interested in any of the above should apply as soon as possible to the Secretary, as only a limited number of pupils can be accepted—rates are low.

Every Sunday evening a dance will be held, and everybody is cordially invited; arrangements have been made for Mr. Hugh Wade to be at the piano until further notice.

LANCASHIRE AERO CLUB

The House Committee desire to announce that the Club will be At Home from 2 p.m. on September 10, and that weather permitting there will be a flying display, balloon bursting, bombing and taxying and height judging competitions. Also joy-riding for guests at low charges.

There will be numerous side shows, such as pigeon shooting, tennis, coconut shies, etc., and a marquee is being erected in case of showers. There will as well be dancing in the evening, during which will be an ankle competition, a Yo-Yo contest, and tight rope walking. Any visiting pilots will be welcome.

ALL-HALLOWS-ON-SEA

Mr. J. Stark is opening up an aerodrome at All-Hallows-on-Sea, Kent. On Saturday and Sunday, September 10 and 11, he is holding a "hangar warming" there, his idea being to collect as many visiting aeroplanes as possible in order to create an aeronautical atmosphere among the thousands of trippers who visit the place every week-end.

He can put up a few people for the night on Saturday, and meals are obtainable very cheaply close to the aerodrome. The aerodrome, easily discernible from the air, is on the west side of the new railway station.

SCARBOROUGH AERO CLUB

In spite of the bad weather about 20 hours' flying has been completed during the past week.

Visitors include Mr. Turner and passenger from Thornaby. Mr. and Mrs. Micklethwaite in their new "Moth" flew over from Yeadon; they have recently returned from a tour in Spain. Maj. J. E. D. Shaw, the President of the Club, brought his "Avro Cadet" from Kilbymoorside, afterwards flying to Grimsby.

Flt. Lt. G. A. V. Tyson returns this week to resume his duties. Thus, with a staff of two pilots, instruction, taxi-work, or joy-riding is always available.

BROOKLANDS AERODROME

Flying times for the past week totalled seventy hours—the slight drop being due to changeable weather conditions.

During the week there have been another two first solos—those of Mr. Lewis and Mr. Hayward, of Hawker's. The latter was sent off after only 5½ hours' dual. Mr. Hett has completed his height tests.

The latest pupil to have Autogiro instruction is Mr. Trowbridge Heaton, who has been having dual on this machine.

Miss Winifred Brown has done a further hour's tests in the blind flying contest.

Mr. Mistingher, of Vienna, is this week returning to his own country after a course at Brooklands, complete with his "A" licence.

The "Junkers" of Personal Flying Services, Ltd., has recently undergone a top overhaul under the supervision of Mr. Le Croix.

AT GATWICK

During the past week Mr. Richard Lane successfully completed his "A" Licence tests. Several other pupils are on the point of doing so.

The clubhouse is in the process of being redecorated, and when finished will look more attractive than ever. To the many other attractions of the Club have been added a deck tennis court and bowling green, and for wet days and long evenings there is now a ping pong table in the lecture room.

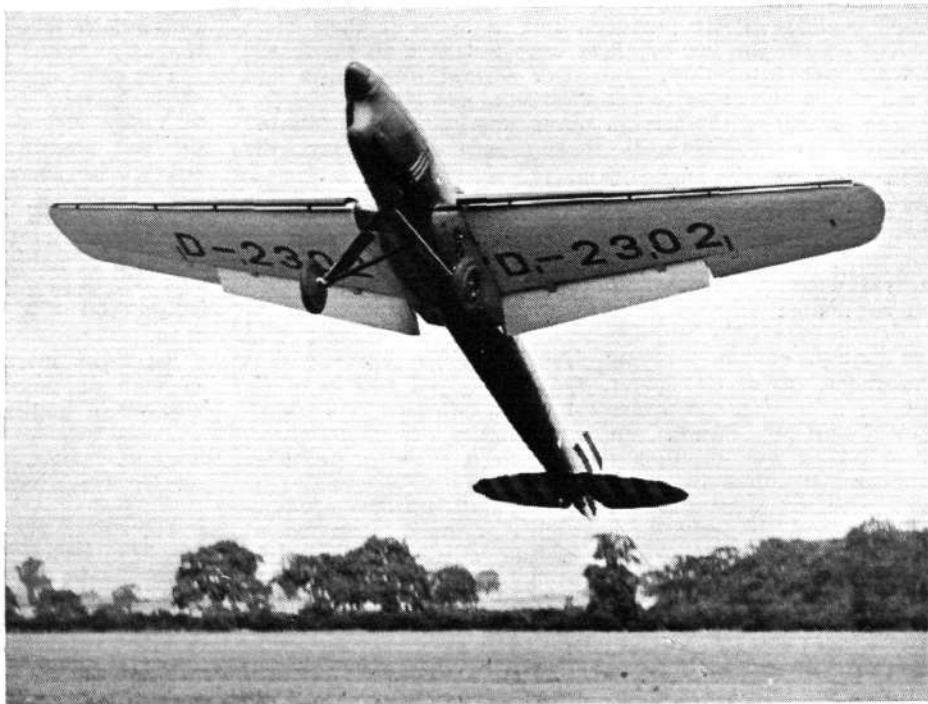
THE NEW HEINKEL HE 64

By EDWIN P. A. HEINZE

ONE of the financially soundest aeroplane factories in Germany, and one of the busiest, too, is that of Heinkel at Warnemünde, on the shores of the Baltic. Yet this maker is relatively less known to the general public than most of the others, because he neither builds transport planes of a type used in Germany nor, up to the present, small planes such as the clubs and individual owners would purchase. The factory has specialised more in the production of school machines and catapult planes, and has occupied itself most extensively with the design of military planes for foreign powers. Hence it created a sensation when one day news leaked out that Heinkel was entering the light plane field, and that he intended taking part in this year's International Light Plane Competition on the Continent. The fine performance of the German officer Seidemann, with his colleague Witt as observer, in an Argus-powered Heinkel, during the air tour forming part of this competition, brought Heinkel into the limelight of public interest.

Indeed, the new Heinkel machine appears to be what may be termed a "hit," which is all the more remarkable as this is the first machine of this type developed by the company that was founded in 1922 by Dr. Ernst Heinkel, already then an aircraft engineer of long standing, who for years had been the technical chief of other aeroplane factories in Germany, especially during the War.

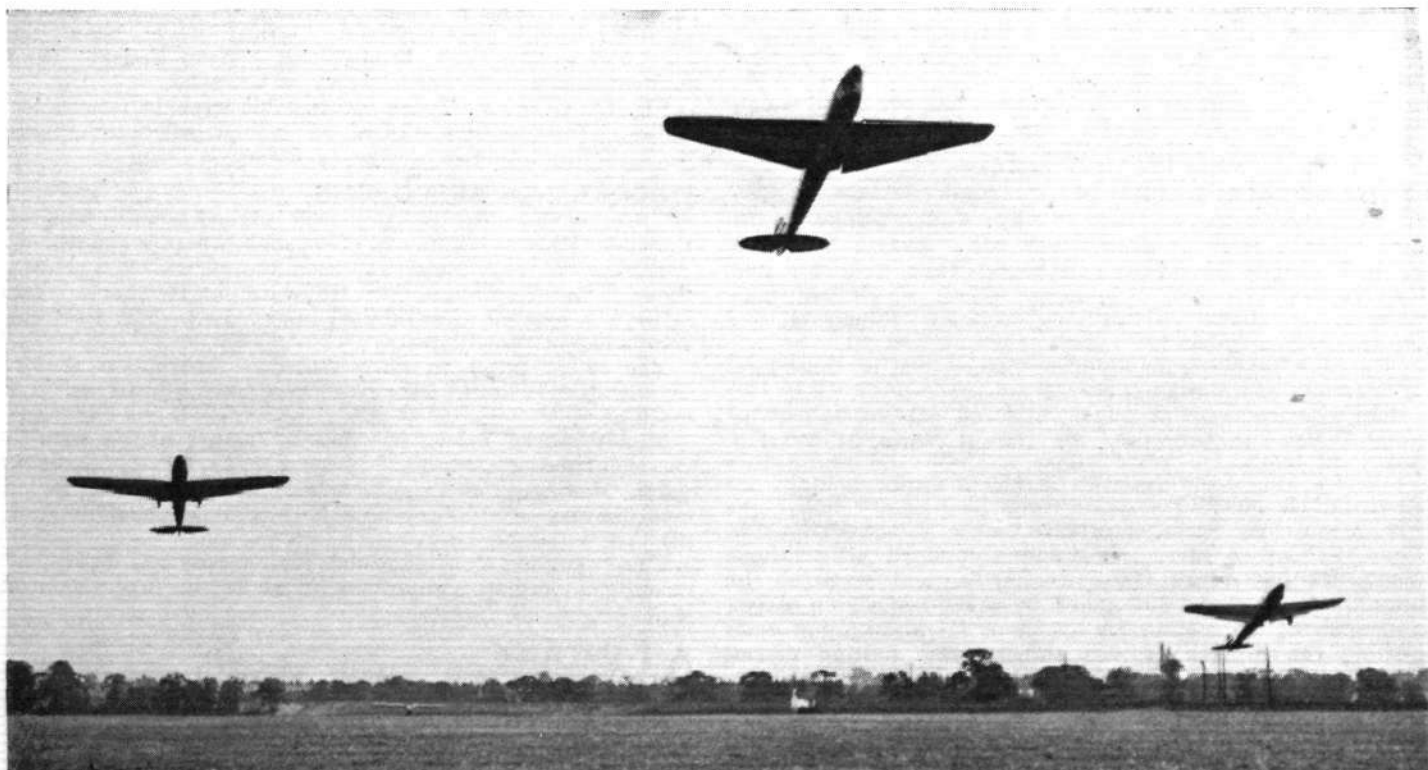
The new Heinkel is a low wing cantilever monoplane built entirely of wood, with a long and slender fuselage of oval section, with which the wing stubs are integrally formed. The single spar wings are of trapezoid contour and are secured by universal joints and lever-operated



"EINE HEI(N)KLE SACHE": Capt. Cordes, Handley Page's test pilot, giving a take-off demonstration at Radlett. Note lift flaps down and all slots open. (FLIGHT Photo.)

bolts. The connection is so well worked that the small gap between the wings and stub wings barely measures one millimetre, so a special covering strip is not required. The bolt lever, however, permanently protrudes slightly on the lower wing surface. The maximum chord of the wing at the roots is 2 metres (6.56 ft.), and 0.8 metre (2.62 ft.) at the rounded tips. The wings are set at a dihedral angle of $4\frac{1}{2}$ degrees, and have a span of 9.8 metres (32.15 ft.). The over-all length of the machine, which has two seats arranged one behind the other, is 8.31 m. (27.26 ft.) and the greatest beam (i.e., horizontal diameter) of the fuselage 0.73 m. (2.4 ft.).

The wings are provided with slow-flying flaps and ailerons extending to and partially completing the rounded



GOOD BYE TO RADLETT: The three Heinkels leave in formation after their demonstrations. Note that on the leading machine the port lift slot is open and its associated flap down, while the starboard slot is closed and its flap up. (FLIGHT Photo.)



THE HEINKEL He.64 : This three-quarter rear view was taken at Heston shortly after the arrival of the Heinkels from Germany during the "Week-End Aérien." (FLIGHT Photo.)

wing tips. The leading edge of each wing is additionally equipped with two independent Handley-Page slots covering the whole length of the wing. The outer slats, having the length of the ailerons (1.93 m. or 6.33 ft.), are of the automatic type, while the inner slats are connected with the slow-flying flaps. It is due to these means that the machine, which with the Argus 140/150 h.p. engine has a maximum speed of some 155 m.p.h., can actually fly without loss of altitude at 38.6 m.p.h., as was done, for instance, by Junck and Seidemann during the slow-flying tests at the international meeting above referred to. The wing area of the machine totals 155 sq. ft., including the ailerons, which each has a surface of 5.23 sq. ft.

The two cockpits are covered by a common, long celloid hood of streamline form, merging at the rear end into the top of the fuselage, which, as all parts offering air resistance, has been most carefully designed. The seats in the cockpits are adjustable for height and leg length. Dual controls are provided, those in the rear being so designed that they can be "switched off" literally instantaneously by a small lever within reach of the front pilot. The stick and pedals then move freely without affecting the plane's steering. This is an excellent feature for school-work. The controls can additionally be taken out entirely and replaced and connected within a few seconds. Otherwise the controls are wholly normal. Provision for the inspection of the cables, etc., is made by well-covered apertures in the fuselage.

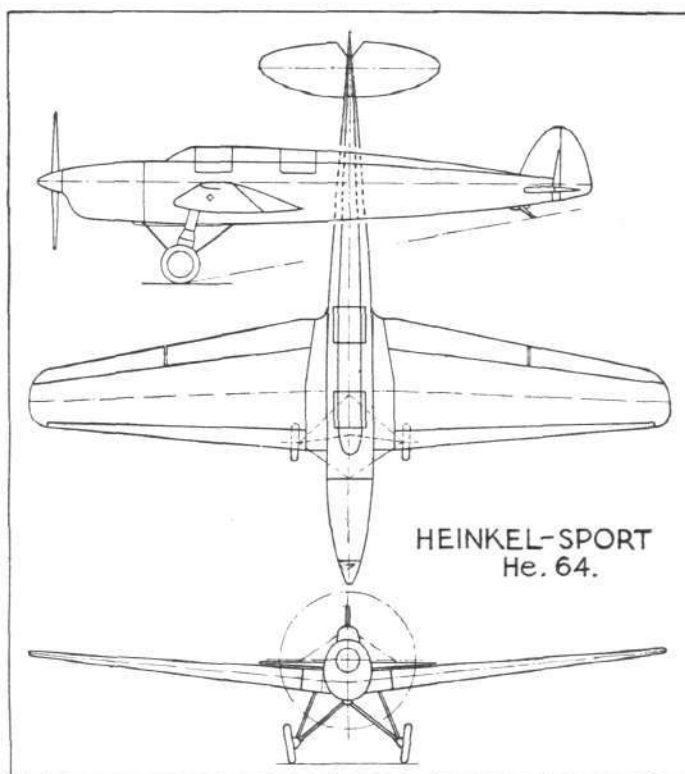
The tail surfaces, *i.e.*, stabiliser and elevator, are entirely made of wood and have a long oval form, 9.02 ft. in length and 2.88 ft. deep, the depth of the elevator being 1.34 ft. The area of the stabiliser is 10.37 sq. ft. and that of the elevator 8.63 sq. ft. The stabiliser is adjustable during flight to the extent of + 3 and - 8 degrees. The rounded rudder fin, which is braced by lateral wires against the stabiliser, has an area of 3.4 sq. ft., and the rudder is of 5 sq. ft.

The undercarriage is of the divided type, with Palmer brake wheels and combined hydraulical and pneumatic struts. The wheels are not provided with spats.

As already indicated, the machines are equipped with the new Argus engines of 140/150 h.p. maximum output. These inverted engines are well faired by an aluminium casing, which is easily detachable. A variable pitch propeller of 6.88 ft. diameter is employed (generally set to a pitch of 4.59 ft.). The engine is mounted on a steel tube frame attached to the fire bulkhead in the usual manner. Extensive use is made of rubber for engine suspension, so that vibration is considerably damped. The engine draws its fuel supply by means of two diaphragm pumps from two tanks, one of which is situated immediately behind the fire bulkhead in the fuselage, while the other is arranged in the bulging parts of the fuselage between the first and second seat. The oil tank forms part of the nose of the right stub wing, where it is effectively cooled by the slipstream.

The machine weighs complete with instruments and ready for flight, but otherwise empty, 990 lb., and will take a load of 660 lb., so the full flying weight comes to 1,650 lb. The wing loading amounts to 10.65 lb. per sq. ft.

E. P. A. H.



Some Editorial Comment

The description of the Heinkel He.64 by our German correspondent, printed above, gives the main data, etc., of the machine. During the recent visit of the "week-enders" a number of Heinkels were seen and inspected, and a good opportunity to watch their behaviour was afforded. Moreover, on Monday of this week Handley Page, Ltd., arranged a demonstration at Radlett, at which three of the Heinkels were flown. Thus one is able, quite apart from Herr Heinze's description, to form a very good idea of the qualities of the He.64.

As a piece of workmanship the Heinkel is an outstanding example of German craftsmanship. The finish is such as is rarely seen anywhere, and the machines looked spick and span in spite of their strenuous time in the International Touring Competition.

Something should be added about the slot mechanism, which is of a more advanced type than has ever been seen on an aircraft in this country. The wings are slotted and "flapped" over their whole span, slots as well as flaps being divided into what may be termed lift and control devices respectively.

The inner slots, which extend from the wing root to the automatic wing tip slots, are automatic in action, and are so connected to their trailing edge flaps that when the slots open the flaps are pulled down to their full extent. The outer slots are also automatic, and are connected to the aileron flaps in such a way that as the slot opens the

aileron drops a few degrees. After that, however, the aileron is free to operate in the normal way without interfering with its slot.

The lift slots can be locked in the "closed" position, when their associated trailing edge flaps are flush with the wing surface. They cannot, however, be locked in the "open" position, with the flaps down, nor do they have any intermediate position. Either they are fully closed or fully open. To us it appears that this is not the best possible arrangement, and that the automatic operation is of somewhat doubtful value. We believe an improvement would be for the lift slots and their flaps to be manually operated, or at any rate for them to be under the control of the pilot in such a way that any desired intermediate position between fully closed and fully opened could be maintained. In gusty weather there seems to be a tendency for the lift slots to slam about, and one of our photographs actually shows that it is possible for the lift slot on one side to be closed and the other open. We understand that actually Handley Page, Ltd., who designed the slots for the Heinkel machines, desired a torque tube to be incorporated so as to ensure the simultaneous opening and closing of the port and starboard lift slots, but that as wing-folding was an important feature for machines in the International Touring Competition, the Heinkel firm decided to do without this interconnection.

The Heinkels were flown, during the demonstrations, by the various German pilots, but it was Capt. Cordes, Handley Page's test pilot, who gave far and away the most impressive demonstration. Although he had flown the machine for only about two minutes before, he took off in a nearly vertical "zoom" for the benefit of our photographer, and afterwards flew about quite low down, with the machine at an alarming angle, but definitely showing that even at the largest angles the controls are effective. The demonstration was a credit to the Handley Page slots, but it was also a welcome reminder that Cordes is a pilot of more than average ability.

In trying to form an opinion of the Heinkel He.64 it is essential that one should remember that the machine was designed specifically with the International Touring Competition in mind, and that the International Touring Competition was designed to produce a useful type of aircraft for the private owner. The Heinkel very nearly achieved its object, but it is doubtful if the International Touring Competition did. As a competition machine, a collector of points for take-off and alighting, the Heinkel is very nearly all that a machine could be. As a private owner's machine it is not yet ideal.

From the point of view of the pilot, the Heinkel is undoubtedly an interesting machine, but during a short flight we cannot honestly say that we were impressed with its suitability as an aeroplane for the average private owner. It is true that a very low flying speed can be achieved without an undue sinking speed, which is only natural in view of the fully-slotted wing, but it did seem to us that it was necessary to use the engine if the full benefit of the slots was to be obtained. On the glide there was a distinct, and somewhat unpleasant, snatch when the slots opened, and we gather that normally the German pilots do not let the gliding speed fall below a fairly high figure, at which the glide was, as one would expect, very flat. The controls were efficient and reasonably co-

ordinated, although the rudder of the machine we flew was distinctly heavy; this, however, we understand was due to mechanical friction in the hinges. This explanation would appear to be correct, as despite the length of fuselage the amount of control available was by no means excessive. It was definitely greater than that usually provided by German designers, but hardly up to the average English aeroplane. The ailerons were good, giving full control even when all slots were open and one was hanging on the engine, and it was in this manner that the competition landings were made during the *Rundflug*. Whether or not there is sufficient control without the engine for such short landings to be made in cases of necessity seems to us to be a matter for some doubt. At top speed the machine was comfortable to fly, and the controls were not unduly heavy, but for comfort on long journeys considerably more shoulder and head room would have to be provided for the pilot if it was proposed to sell the machine for private use; this is not, we understand, likely to be the case. The view forward is not so good as one is entitled to expect from an aeroplane with an inverted engine and a fuselage of such narrow cross-section; neither is the wind screen arrangement comfortable except when completely closed.

The take-off is straightforward, though at the same time the super slotted arrangement would seem to make extra care necessary, as side gusts might well open one slot before the other with possible difficult complications.

The undercarriage, as at present fitted, is very harsh, but presumably that is entirely due to competition desiderata.

The Argus 140 was disappointing, being rough without giving one the impression that one had 140 h.p. to play with; and in any case 140 h.p. would seem a lot to pay for this form of two seater, with a performance very little better than British designers obtain with cabin machines giving much greater comfort and seating capacity.

It can, we think, be said that the Handley Page slot has outstripped the technical development of the aircraft. The Heinkel He.64 will hang in the air at 38 m.p.h. or so, but at a very large angle. To alight at that angle would result in serious damage to the machine, as the tail skid would hit first, and the undercarriage then come down with considerable force, probably resulting in a crash. Consequently the speed at which the machine can safely be put down is considerably higher than the minimum speed at which it can hang in the air (with engine running). So long as that is so, there seems to be little point in all this slottery.

One demonstration which *would* have been convincing was not given: a landing with engine stopped. While the engine is running, the combined effect of the slipstream and the upward pull of the airscrew assist materially in making possible the remarkably low speed. With a "dead" engine, and of course no slipstream, the result would probably have been a good deal less impressive.

Before the fully-slotted aeroplane is a practical proposition, and before it adds materially to the safety of the average private owner, it will be necessary to incorporate not only a variable incidence but also an undercarriage capable of absorbing the shock of a landing at high rate of sinking. And even then, the reversal of controls necessary for flattening out may prove a stumbling block to some pilots.



ANGLO-GERMAN CO-OPERATION : This group, taken during the Radlett demonstration, includes, from left to right, Herr von Dungern, Oberleutnant Seidemann, Mr. Handley Page, Oberleutnant von Cramon, Herr von Salomon, Oberleutnant Witte, Dr. G. Lachmann and Sqd. Ldr. T. England. (FLIGHT Photo.)

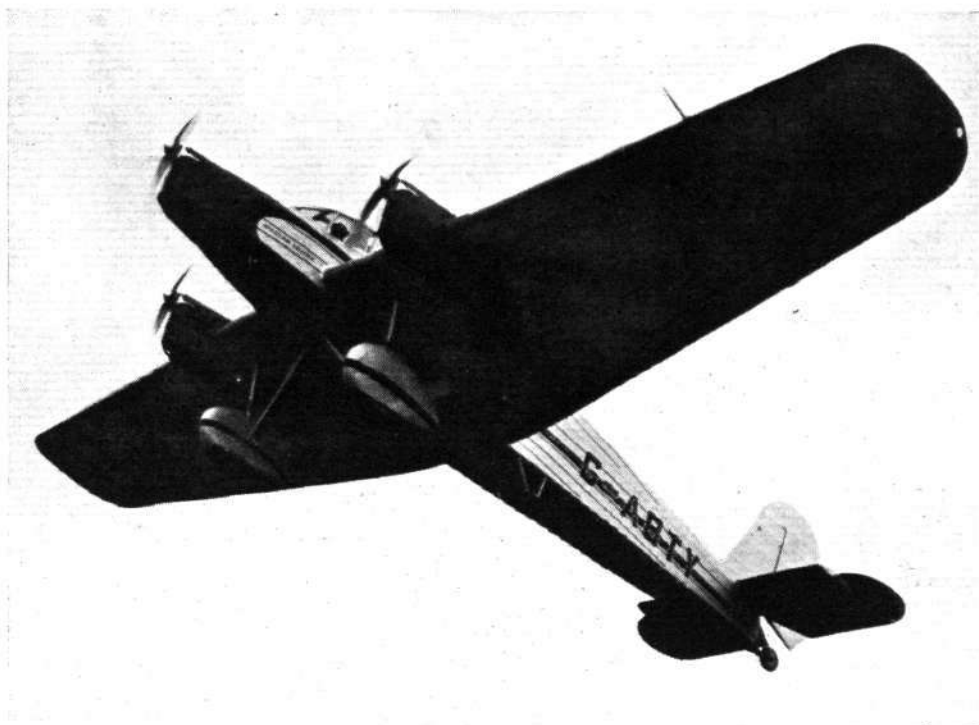
The Spartan Display at Heston

IN last week's issue we briefly announced and illustrated the interesting demonstration of the latest types of Spartan aircraft that took place at Heston Air Park on August 30, organised by Spartan Aircraft, Ltd., and Henly's, Ltd. This week we give a full description of the event.

The business-like method of definitely introducing their new aircraft to a small special audience was commendable in these difficult times, which are being felt as much by the aircraft industry as by industry generally. The demonstration was preceded by a luncheon given by the Spartan Co., at the conclusion of which Mr. John Lord, managing director of the company, made a short speech expressing characteristic cheerfulness while recognising the unfavourable condition of world affairs.

He explained that the company had placed the new types upon the market in the hope and belief that they would be the types of aircraft in demand for 1933. Referring to the Spartan "Cruiser," he said that it was a six-seater developed from the Spartan mailplane which Capt. Stack had recently flown to India and back, which could carry a pay load of 1,000 lb. for six hours at 110 m.p.h. It could also fly with that load on any two of the three engines. The Spartan Company considered that performance was very creditable, though they did not say it was the last word. They had simply done their "damnedest," emphasised Mr. Lord, to produce the goods that they thought would be in demand.

Mr. Lord then explained that any of the guests present were at liberty to fly their aircraft, and that the demonstration was purposely intended for those who actually flew them, not for those who watched from the ground.



The Spartan "Cruiser" as seen from below. Its controllability is exemplified by the steep climb, this photograph being taken directly after the take-off. Even at this angle it is obvious that the pilot has an excellent forward and downward view. (FLIGHT Photo.)

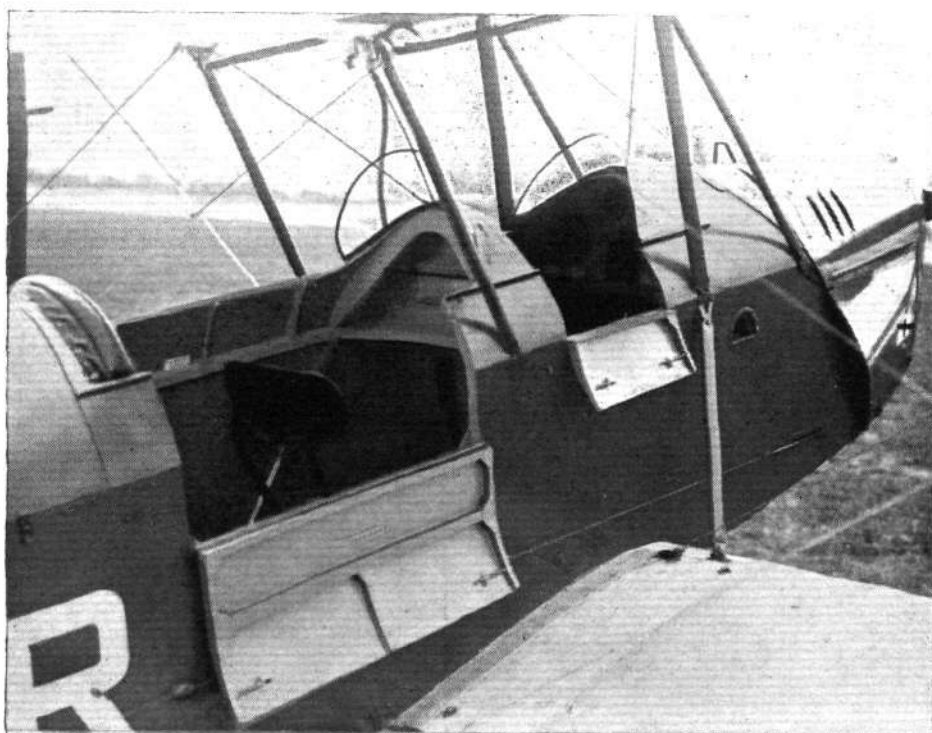
After the luncheon the flying demonstration began, and a large number of passengers were able to appraise the new machines. The Spartan "Cruiser," the Spartan mailplane "Blackpool," that flew to India, and several of the new Spartan three-seater light planes were lined up in readiness. Lt. Col. L. A. Strange, a director of the Spartan Co., took up the "Cruiser" with a full load of passengers, and was followed by two Spartan three-seaters in formation.

As a fully-illustrated description of the Spartan "Cruiser" was published in FLIGHT as recently as July 22 last, it will suffice here to recall its general features.

It is a monoplane of very clean design, equipped with three Gipsy III inverted engines intended for service as a passenger machine or a freight carrier. As the former it will carry six or eight people, and fly with safety on any two engines. As the latter it will carry freight of 1,000 lb. The fuselage is of metal construction and resembles in principle the construction of the "Saro" flying-boat hulls. An excellent all-round view is obtained by all the passengers as well as the pilot, who is situated in the nose of the cabin. Maximum speed is 135 m.p.h., cruising speed 110 m.p.h., initial rate of climb 600 ft./min., and ceiling 13,000 ft.

In flight passengers can converse without any interference of noise and are happily situated for sociability, while each has his own unrestricted view without neck-craning.

After Col. Strange had landed, the "Cruiser" was loaded up with sand bags, totalling 1,000 lb. in weight, and then Flt. Lt. S. D. Scott, test pilot to Saunders-Roe, Ltd., accompanied by one passenger, took off and proceeded to demonstrate the ability of the monoplane to climb with that load on only two engines. Capt. C. D. Barnard, who had not flown the



Ample room for two persons is provided in the rear cockpit of this, the latest version, of the Spartan 3-seater. (FLIGHT Photo.)

"Cruiser" before, was the next to take up the machine, having five passengers with him, including Mrs. Barnard. His example was then followed by several pilots, including Messrs. Baker, Youell, Styran, Anderson, St. Barbe, Luxmore and Parkes. All these flights showed that the "Cruiser" answered well to the controls and had no vices to disturb a pilot handling it for the first time.

The new Mk. II Spartan three-seater (first announced and illustrated in FLIGHT for June 10), which was also exhibited and flown, embodies many improvements over its predecessor. An admitted difficulty with the latter was the inconvenience of exit and entrance for passengers; furthermore, the pilot's view was not satisfactory. Both of these faults have now been eliminated. By placing the passengers' cockpit at the rear, the pilot, from the front seat, has a far better view, aided considerably by the introduction of an inverted engine. A large door also improves entrance and exit, which is specially acceptable for joy-riding work. There is a roomy locker behind the passengers' seats for luggage, wheel brakes are fitted, and provision for dual control given.

The subduing of noise in the cockpits is helped by fitting the exhaust underneath the engine. A 22-gallon petrol tank is installed for ordinary purposes, which can be increased to take 34 gallons if necessary. An interesting feature of the three-seater is the installing of the new inverted Hermes IV, which gives 120-130 h.p. at 2,000 and 2,200 r.p.m.

This is its first appearance for normal duties and assists in making the Spartan three-seater one of the attractive light planes of the moment. Our readers will remember that the Hermes IV helped Mr. E. W. Percival to put up a very fine performance in the Percival "Gull" in this year's King's Cup Air Race, a performance which included making the fastest time of any cabin machine in the race, namely, 142.75 m.p.h. The performance of the Spartan three-seater, equipped with the Hermes IV, is



1,000 lb. being loaded into the Spartan "Cruiser" for a full-load demonstration. (FLIGHT Photo.)

as follows: Cruising speed, 97-100 m.p.h.; maximum speed, 110 m.p.h.; and landing speed, 45 m.p.h.

Supporting Mr. John Lord in this practical exhibition of the new Spartan types were his fellow directors, Sir Alliott Verdon-Roe, Lt. Col. L. A. Strange, Mr. H. E. Broadsmith, Mr. J. de Ballardie, Mr. A. E. Chambers and Mr. W. D. L. Roberts. (Capt. H. Balfour was unfortunately away sick.) Mr. Allen, of Henly's, Ltd., also helped at this *début*.



Flare Illumination

The Driggs-Faber System Introduced in Great Britain

A DEMONSTRATION of a flare system of illumination for night-flying purposes was given at Hanworth on August 31. The system is of American origin, and is known as the Driggs-Faber system. The American manufacturers of the flares are the International Flare-Signal Co., of Tippecanoe City, Ohio, and negotiations are now proceeding with a view to forming a company for the manufacture of the flares in Great Britain.

The demonstration given at Hanworth was most interesting. All types of flares were shown, and landings were made in a "Moth," not only by the aid of a flare fired from the aircraft itself, but also by that of one held

as a torch. An advantage of the latter method, which was at once evident, is the fact that the smoke arising from it as it burns makes an excellent wind indicator for the pilot. For general purposes it would seem that unless the pilot was absolutely sure of the configuration of the ground upon which he was going to land and also of the direction of the wind, he would have to use two flares, the first acting, as it were, as a sighting shot so that he would then know where to fire the second so that it would give him illumination in the correct place for his landing.

As a form of emergency ground-equipment both the large and small flares appeared to offer a ready and safe means of providing pilots with the necessary illumination for landings, and it is certain that flares like these are far less trouble to lay out and far quicker to get going than are the normal paraffin types, besides being more effective.

The electrically-fired type, which is attached to the side of the fuselage, is rather in the nature of a luxury for light aeroplanes, but might well be considered worth its slightly higher cost for large commercial aircraft which have to cover tracts of country in which there are few, if any, organised landing facilities. The excellence of the small pistol-fired type, which requires only one hand to operate it, can hardly be over-emphasised, especially for private owners. As the price of this type is reasonably low, we may safely assume that there will be a demand for it in this country.

There seemed to be no difficulty about holding the flares in



THE ELECTRICALLY-FIRED TYPE: The battery of flares may be seen strapped to the side of the fuselage (as a temporary measure). This picture of a "Gipsy Moth" belonging to Airwork, Ltd., was taken at Hanworth, by the light of a Chance Brothers floodlight. (FLIGHT Photo.)



LANDING LIGHT AND WIND INDICATOR COMBINED: One of the flares, held in the hand, provides illumination for a night landing. (FLIGHT Photo.)

flares in the hand as torches, provided the operator stood to windward of the flare, but it struck us at the time that their efficacy for landing purposes might well be enhanced by the provision of some form of hood above the flare which would shield the incoming pilot from the vertical rays and consequent glare, although pilots report that the flares do not dazzle them.

Quite briefly explained, the Driggs-Faber system of flare illumination consists of metal (aluminium) cylinders, containing at one end a propelling charge and at the other the charge of chemicals which, upon being ignited, provides the illumination. Although for illumination purposes the white light is that commonly used, these flares can also be obtained with chemical charges giving green or red lights, should these colours be required for special purposes. The lights are available in a variety of strengths and durations of burning, ranging from the small 50,000 candle-power light of 30 sec. duration to lights of more than half a million candle-power, and capable of burning for up to 3 min. The principle is the same in all sizes, and a variety of sizes can be fired from the same pistol. The use of these flares is by no means restricted to aircraft, although that is obviously the application with which we are most concerned here, but includes coast guard and similar work, as well as probably numerous uses in the Navy and Army.

Apart from the range of sizes of flares which can be fired from pistols, the standard range at present includes

a battery of flares of great illuminating power, designed to be permanently mounted in the fuselage of aircraft, and electrically fired from a small dry battery. This particular type is chiefly intended for fairly large aircraft, although the weight is by no means prohibitive.

The pistol-fired flares are designed to be carried inside the fuselage, in racks, and standing vertical. Loading the pistol is a one-hand operation, as the pistol is so designed that when its muzzle is pressed over the end of the cartridge, an internal catch in the pistol secures the cartridge, which is withdrawn from the rack by merely lifting the pistol. This impresses us as being a particularly good feature, as the operation of grasping the pistol, pushing it over the end of the cartridge, withdrawing the cartridge from the rack and firing it only occupies something like 5 sec.

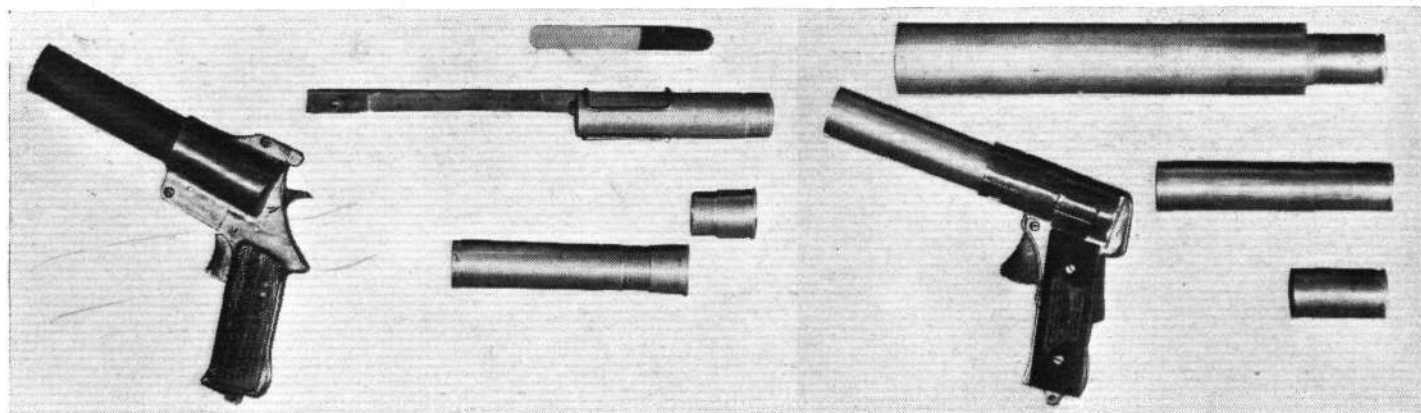
The parachute type of flare is provided at one end with a paper parachute folded inside the container. Normally the intention is, of course, that the flare should be fired from the aircraft or from the ground in an upward direction. (The electrically-fired type is projected horizontally.) From the ground the flare is shot to a height of 150-200 ft., and if the flare is fired from an aircraft, that extra height will be available and, in all probability, the flare will have burned out by the time it reaches the ground. If, however, the pilot desires to use the flare to show the direction of the wind, and is content with having a smaller area of ground illuminated, he can fire the flare in a downward direction. The parachute is then consumed by the illuminant and the flare falls quickly to the ground, where it will lie burning for a considerable period, the smoke from it acting as a very good wind direction indicator.

In addition to the firing of flares by pistols or electrically, all types are so designed that the propelling charge cartridge can be unscrewed, and the container with the illuminant held by hand in a special holder, a striker of the sand paper type being provided, although the charge can be ignited by means of a match if desired.

We are informed that these flares are by no means expensive, and if that is the case, they should find a very wide application. Not only will it be easy for every aircraft at all likely to do night flying to carry a supply on board, but some of the powerful flares, hand-held or pistol-fired, with or without the use of the parachute, would form a very cheap and useful equipment for smaller aerodromes where the expense of flood light equipment is not justified.

For use in aircraft, one great advantage is that the fire risk is apparently quite eliminated by the fact that the flares are always, whatever type, projected a considerable distance away from the machine before it is ignited. This distance, by the way, can be varied by the time fuse provided. All flares are airtight, so that they will keep indefinitely without getting damp. This is a useful feature for landing grounds where the lights are infrequently used.

As we have already mentioned, the British company has not yet been formed, but anyone wishing to communicate with those who are forming the company is asked to send their letters to the offices of FLIGHT, when they will be forwarded to the proper quarters.



PISTOL-FIRED PARACHUTE FLARES: On the left, the larger, breech-loading, pistol, its ammunition, and the holder and striker for hand-held illumination. On the right, the aircraft pistol, which is of the muzzle-loading type, and various size flares which can be fired with it. One of the flares is seen in position in the barrel of the pistol. The flares are a 200,000 c.p., a 50,000 c.p., and a Very type signal. (FLIGHT Photos.)

Air Transport

Air Subsidies in Australia

IN a recent report on the cost of subsidised air services in Australia, the Commonwealth Auditor General remarked: "On one route in Queensland the average cost of transporting a pound of aerial mail is nearly £7." Commenting on this, the *Qantas Gazette* writes:—

"The 'outback' air services of Australia are subsidised by the Federal Government for the purpose of assisting outlying communities by the provision of fast transport over big distances and where poor communications exist. A facilitation of passenger travel, urgent goods transport, and mail communication. Other reasons for the subsidy are the encouragement of commercial aviation and defence.

"Is there not some parallel between the subsidised 'outback' air services and those tens of thousands of miles of railway line which are kept open at a heavy expense to the taxpayer simply because some measure of service must be extended to outlying settlers who are bearing the brunt of colonising the interior?"

Quicker Mail Service to Canada

It is reported from Ottawa that a postal agreement has been arrived at between Great Britain, Canada and the Irish Free State by which it is believed that 12 hr. may be cut from the present record of 3 days 22 hr. for mails between London and Montreal. The plan foreshadows an arrangement to fly the mails between London and Cork as soon as it becomes possible to resume regular calls at Cork for both inward- and outward-bound liners.

Swedish Mail Plane Crashes

A SWEDISH plane, which left Amsterdam with mails on Aug. 30, crashed at Tübingen, near the German frontier, the pilot, Liljeberg, being killed and his mechanic seriously injured.

International Association of Air Traffic

GEN. BALBO, Italian Air Minister, opened the twenty-eighth session of the International Association of Air Traffic—which represents all the principal civil air lines—at Venice on August 31. In concluding his opening address Gen. Balbo said that he trusted the Governments of the world would in a not distant future avail themselves of the benefits offered by these meetings, and "realise what to-day is only a pious hope—the freedom of the skies, without which navigation will always be fettered by impediments of frontiers."

An African Airway Adventure

THE Imperial Airways Short flying boat *City of Stonehaven* was forced down through engine trouble 105 miles south of Malakal on August 29 while on its way from Juba

to Khartoum. The 17 passengers were forced to spend a day or two in the desolate region of the Zeraf River before they were taken to Malakal by the relief aeroplane. They passed a not uninteresting, if somewhat unpleasant, time, and towards the end food supplies were running short; at night the mosquitoes were very troublesome. However, a four-year-old Italian boy kept them in high spirits with his merry ways, and the passengers arrived at Malakal looking well and happy.

Air Transport in the West Indies

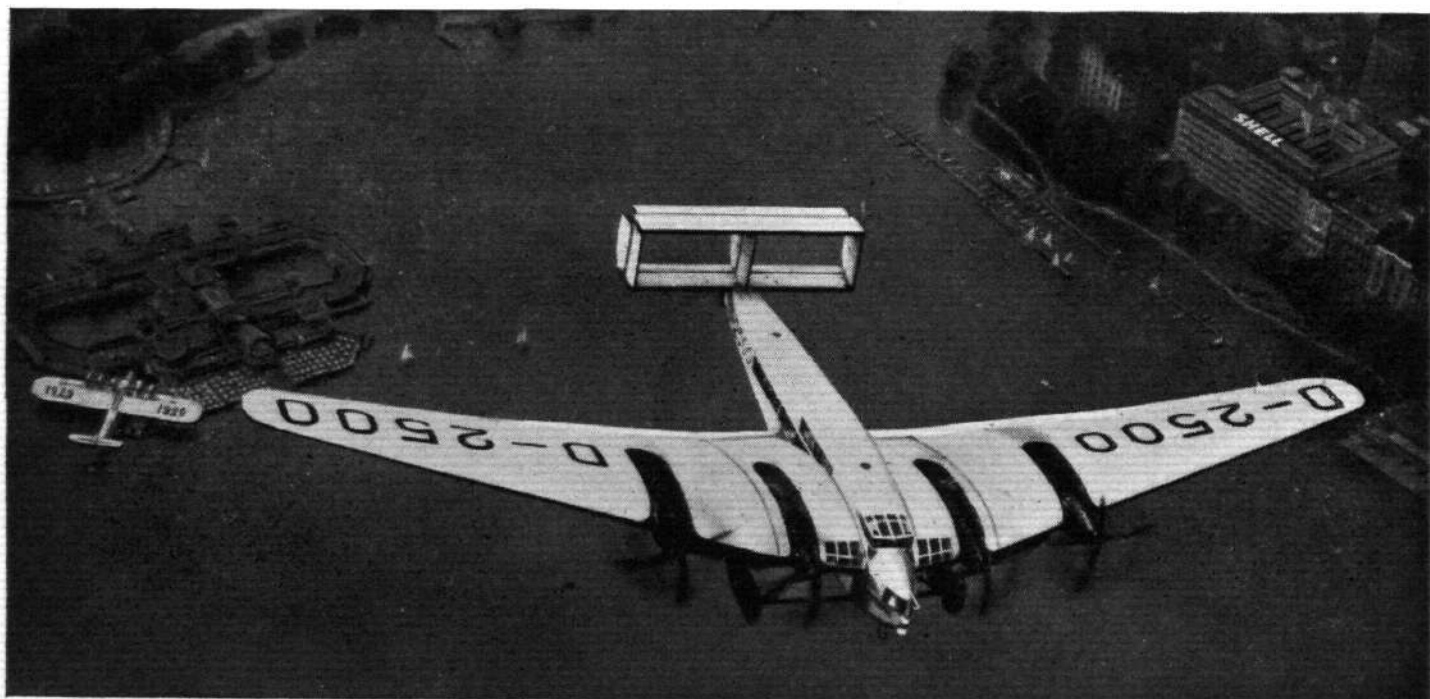
THE important question of air transport in the West Indies, which has been "under consideration" for some years now, is raised in the following letter from Mr. Alan Chorlton to *The Times* of September 3:—

The announcement that a commission is to proceed to the West Indies to consider the question of the federation of those colonies will be welcomed by those who have the interests of the group at heart. It is, however, a matter for regret that the Secretary of State for the Colonies has not yet seen his way to appoint an adviser on air transport matters to the Commissioners. No doubt, the Commission will be alive to the many advantages which should accrue in the way of increased efficiency of Government, economy, improved postal services, etc., and in technical education and research in connection with the products most suited to the natural conditions of the islands, soil, climate, etc. This closer working connection is dependent on transport, and to-day between islands this can only mean the air. Air transport has now passed outside the area of debate existing at the time a committee inquired into B.W.I. conditions, for the great experience made by the various air transport companies, together with that directly applicable from those American companies already operating in part the West Indian areas, is available. The interconnecting company to-day to operate between the British islands of the Caribbean Sea must be British, and have all the islands concerned and British Guiana interested in its management. The report made some time ago is still valuable, but badly needs bringing up to date, for since then, apart from experience in operation, more efficient twin-engined machines are available of relatively small size, upon which the commercial success of the service so much depends. The time is ripe, indeed it is necessary, to review the whole situation from an air-transport point of view, and we must all hope the Colonial Office will take the opportunity now offered to do this.

Air Mails to Karachi in Three Days

KARACHI is now reached in three days from Amsterdam, Calcutta in four days and Rangoon in five days, after the introduction recently of a faster air mail service between Amsterdam and Netherland's India by the Royal Dutch Air Line. This line had already held the record for the fastest air service between the Continent and the Far East, as its aeroplanes had been accomplishing the journey between Karachi and the Continent in four days, compared with 5½ days taken by the Imperial Airways aeroplanes.

Still faster service was possible by the addition of five aeroplanes of a new type—Fokker F.XVIII—to the K.L.M. fleet; the first machine of this type left Amsterdam on August 13 on her flight to Batavia across India and the second on August 15.



THREE BIG THINGS IN AVIATION: This photo—for which we have to thank our friends Shell-Mex & B.P., Ltd.—taken recently over the Ausseralster, the larger of the two lakes in the centre of Hamburg, shows the Junkers G.38, the world's largest landplane, in flight; the Dornier Do. X, the world's largest flying-boat, moored on the left; and the new extensive Shell Haus on the lakeside on the right.



FILTON: A remarkably fine view of the Bristol Aeroplane Company's aerodrome, &c. The aero engine works are seen in the foreground, while the flying school is at the far side of the aerodrome. (FLIGHT Photo.)

Airport News

FROM HESTON

SUNDAY, August 28.—Capt. R. Cazalet arrived from Wexford, Ireland, in his "Puss Moth," and F/O. Ivins from Jersey in his "Bristol Fighter." Mr. Ivins stated he had rather an alarming experience on his outward journey. An interesting demonstration was given by representatives of the International Flares Signal Co. of their flares for use when landing by night.

Monday.—Mr. Brett arrived from Cannes in his special "Moth."

Tuesday.—Capt. C. D. Barnard with his "Fokker" returned from Deauville and Berck with six passengers. One machine cleared for Ostend, with one passenger, and one "Moth" for St. Ingelvert, also with one passenger. Mr. L. B. Moller, who is on a visit to England from Shanghai, carried out his first solo flight after six hours' dual instruction. The Spartan Aircraft, Ltd., selected Heston for a display of the different types of aircraft manufactured by them. A party numbering seventy were entertained to lunch, after which an extremely exhaustive test was given of the various machines. (Fully described on page 851.)

Wednesday.—Herr Strizevski left for Belgrade in a new "Fox Moth," of which he had just taken delivery at Stag Lane, and Mr. Allen, of Henlys, Ltd., left for Paris in an Avian, returning later in the day to Croydon. Three new pupils commenced instruction to-day. The "Stinson Jr.," of the Vacuum Oil Co., arrived from Paris, piloted by Mr. White. During August Airwork School of Flying completed between 290 and 300 hr. instruction; the number of "A" licences granted was 10, and the Customs clearances at Heston numbered over 150.

Thursday.—Airwork School of Flying had to close down

at an early hour in view of the arrival of the foreign visitors attending the "Week-End Aerien." The first machine to arrive was OO-ALY from Ostend, piloted by Mr. Dupont. At 12 noon a constant stream of arrivals began—the last to land was SP-AGJ (Herr Rogalsky) at 5.44 p.m. The Committee running the "Week-End Aerien" are to be congratulated on their arrangements, as all worked extremely well.

Saturday.—Flying was absolutely impossible up to mid-day, but at lunch time the weather improved and the foreign visitors began to arrive from Bristol. Soon after the Liverpool contingent commenced to put in an appearance. Capt. W. Ledlie, of Personal Flying Services, arrived from Aldergrove, Ireland, in a "Junkers" with three passengers. Henlys, Ltd., have sold G-AAXH ("Sports Avian"). This machine did good service during Capt. Barnard's Air Circus in 1931, when it was flown by Mr. L. H. Stace, of Henlys, Ltd. Another Club to the number of 25 visited the Airport to-day and carried out the usual tour. They were fortunate enough to be here while the foreign visitors were arriving, which added much interest to the visit.

Sunday.—Before taking off to proceed to Hanworth for lunch our foreign visitors presented Mrs. Norman, wife of Mr. Nigel Norman, a director of Airwork, Ltd., with a most wonderful basket of carnations, orchids, etc., as a token of their appreciation. Mr. Francis Francis, with his wife, and several passengers, left to-day in his Sikorsky for Geneva. Banco had a charter to Lympne for *The Spider*, which was piloted by Capt. C. D. Barnard. Mr. Norman Turner left for Kenya in the Waco VP-KAP. He proposes to land on the Island of Corsica to refuel during the flight.

Aerodrome Sites

THE London Chamber of Commerce through their civil aviation section recently addressed the Air Ministry on the subject of reserving sites for aerodromes. A reply has now been received pointing out that provision has been made for safeguarding sites in the Town and Country Planning Act passed this year. The Act, it is stated, expressly includes reservation of land as sites for aerodromes among the matters to be dealt with by town planning schemes, while under Section 12 it also enables planning authorities to safeguard aerodrome sites by including in their schemes special height restrictions for buildings in the neighbourhood of aerodromes, whether owned by private individuals or local authorities, subject to the owner's right to claim compensation.

It is further understood that the Ministry of Health has sent a memorandum to planning authorities, urging them when formulating schemes to satisfy themselves that provision is made for road access to aerodromes. Apparently, therefore, the Air Ministry is satisfied that the position with regard to municipal aerodromes is adequately safeguarded and that further legislation on this subject would not be justified.

Aerodromes in the Sudan

ACCORDING to *The Times*, the cotton-bog soil of the Sudan, which becomes a morass in the rainy season and opens up into deep cracks in the dry weather, has compelled Imperial Airways so far to use flying-boats on that part of the Cape route which passes over the Sudan. The new air liners of the "Atalanta" class, which will shortly be put into service in Africa, are land machines, and an experiment in making a solid surface on the boggy land is about to be tried. This method is to be tested at Malakal. If it is a success it will be applied at other aerodromes in the Sudan. The task is one involving the assembly at Malakal of big machinery such as is generally employed in the making of modern roads. Its purpose is, in fact, to make a road for aeroplanes to use across the

aerodrome in the direction of the prevailing wind. Scarifiers, crushers, concrete-mixers, and heavy rollers are being taken to Malakal to do the work. The process will be to tear up part of the aerodrome's surface, reduce the soil to a fairly fine powder, mix this with a quantity of hot asphalt, and lay the mixture down as a paste, which, after rolling and dusting with sand, should bake hard in the sun. The runway, set along the line from N.N.E. to S.S.W., will be about 1,500 ft. long and 240 ft. wide. In the course of its preparation two layers of the soil will be turned up, each to a depth of 5 cm. This material will be scarified until it can pass through a half-inch screen. A concrete-mixer will then be used to unite it in suitable proportions with an asphalt solution heated to a temperature of 120 deg. C. The mixture will then be put down first as a loose layer and then with a top layer which will be rolled solid. This is expected to give a firm surface in all weathers and to be easy to repair if it should be scored by tail-skids. The next dry season, extending usually from November to April, will see the work in progress. During the following rainy season the track, built virtually on a bog, will be fully tested. It will have been a fairly costly undertaking which it may be necessary to repeat elsewhere; and it is typical of the difficulties which may arise in providing for the infrequent landings of aeroplanes on a route flown in all weathers and at all times of the year.

Weather Forecasts from Dover

LYMPNE Airport uses the ordinary meteorological reports from Dover, and frequently makes special inquiries by telephone. Some time ago the station undertook the preparation of a special morning report, mainly for the use of aeroplanes crossing the Channel and landing at Dover. This report is telephoned to Lympne and radiated by wireless from Croydon Airport at 9.30 a.m. The report is taken regularly by a large number of machines, while others ask for it later in the morning.

Airisms from the Four Winds

A R.A.F. Middle East Cruise ?

WE understand that early next year a cruise may be carried out by No. 6 (A.C.) Squadron, R.A.F., of the Middle East Command. This squadron is equipped with "Gordons," and if the cruise takes place, it will be the first undertaken with this type of machine. The provisional itinerary for this cruise will be as follow:—

Day.	From.	To.	Miles.	Remarks.
March 31	Heliopolis ..	Wadi-Halfa ..	670	Refuel Asyut and Aswan.
April 1	Wadi-Halfa ..	Khartoum ..	531	Refuel Atbara.
" 2	Remain	—	—	—
" 3	Khartoum ..	Malakal ..	438	Refuel Kosti.
" 4	Malakal ..	Juba ..	360	—
" 5	Juba ..	Entebbe ..	370	—
" 6	Remain	—	—	—
" 7	Entebbe ..	Tabora ..	550	Refuel M'wanza.
" 8	Tabora ..	Abercorn ..	280	—
" 9	Remain	—	—	—
" 10	Abercorn ..	Fort Jameson	355	Via M'pika.
" 11	Fort Jameson	Limbe ..	220	—
" 12	Remain	—	—	Visits in Nyasaland.
to	Limbe	—	—	—
April 18	Limbe ..	Fort Jameson	220	—
" 19	Remain Fort	—	—	Visits in N. Rhodesia.
" 20	Jameson	—	—	—
to	Jameson	—	—	—
April 26	Fort Jameson	Broken Hill ..	290	—
" 27	Remain	—	—	Visits in N. Rhodesia.
" 28	Broken Hill	—	—	—
to	Broken Hill	—	—	—
May 4	Broken Hill ..	Salisbury ..	294	—
" 5	Remain	—	—	With visits to Odzi-Umtale - Gateoma.
" 6	Salisbury	—	—	Que
to	Salisbury	—	—	Que and Gwelo.
May 18	Salisbury ..	Bulawayo ..	230	With visits to Fort Victoria and Nil Desperandum.
" 19	Remain	—	—	—
" 20	Bulawayo	—	—	—
to	Bulawayo	—	—	—
May 27	Bulawayo ..	Livingstone ..	240	—
" 28	Remain	—	—	—
" 29	Livingstone	—	—	—
to	Livingstone	—	—	—
May 30	Livingstone ..	N'Dola ..	425	Refuel Broken Hill.
" 31	N'Dola ..	Abercorn ..	350	—
June 1	Abercorn ..	Tabora ..	280	—
" 2	Tabora ..	Nairobi ..	475	Refuel M'wanza
" 3	Remain	—	—	—
to	Nairobi	—	—	—
June 6	Nairobi ..	Tororo ..	240	—
" 7	Tororo ..	Juba ..	380	—
" 8	Juba ..	Malakal ..	360	—
" 9	Malakal ..	Khartoum ..	438	Refuel Kosti
" 10	Remain	—	—	—
" 11	Khartoum	—	—	—
" 12	Khartoum ..	Wadi-Halfa ..	531	Refuel Atbara.
" 13	Wadi-Halfa ..	Heliopolis ..	670	Refuel Aswan and Asyut.

A Polish Venture

FLYING a Polish-built Lublin R.XV machine (200-h.p. Skoda-Wright), and using Shell Aviation Spirit and Golden Shell Oil, Capt. S. Karpinski has planned two long-distance flights. The first—to start any moment—is from Warsaw to Baghdad and back, via Aleppo, Teheran, Kabul, Herat,

Baghdad, Cairo, Jerusalem, Istanbul. This flight will be followed by an ambitious attempt to reach New York via Madrid, St. Louis, Port Natal, Para, Paramaribo, Port of Spain, San Juan, Havana, Washington, Chicago, and a return across the Atlantic from Harbour Grace to Dublin.

The Family Tour

MR. AND MRS. HUTCHINSON and their family, who left New York in a Sikorsky on August 23 for Edinburgh, via Greenland and Iceland, left Hopedale, Labrador, for Godthaab, Greenland, on September 2, where they arrived safely the following day. They had originally been refused permission to land in Greenland, and in consequence will probably be fined by the authorities for flying to Greenland in spite of warnings and definite prohibition, and without having made provision for a continuation of the flight. It is stated, however, that the Government will help Mr. Hutchinson to continue his flight from Godthaab, provided he flies along the coast to Angmagssalik, and not over the ice cap, which is the direct route. Fuel and oil supplies are presenting a problem, and it is suggested that he may be allowed to refuel the Sikorsky from the Lindbergh depôt at Godthaab and Kraemer's depôt at Angmagssalik.

The Soviet Air Corps

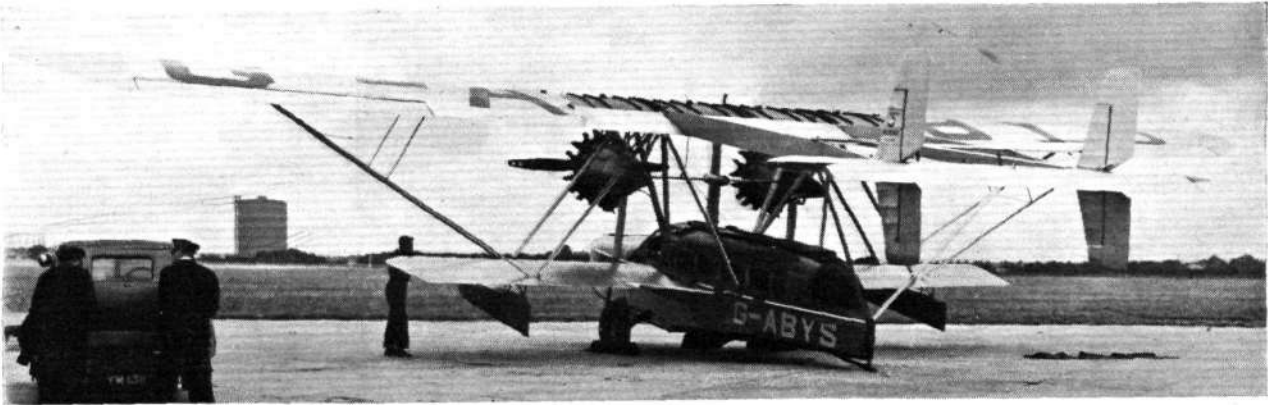
ACCORDING to information published in an article by L. R. Maxwell in the *Aero Digest* of August, the tactical unit of the flying corps of the Red army is the group, followed by the small squadron composed of three groups, and the brigade, generally composed of two to three squadrons. There are in all 10 brigades and 20 autonomous reconnoitring groups of 12 machines each, three brigades and two autonomous groups of nine pursuit (*i.e.*, fighter) machines each, two bombing brigades, a training brigade, and 17 reconnoitring groups of six machines each belonging to the Air Corps, in all about 100 groups. In addition the Navy has eight groups of machines in the Baltic (50 seaplanes) and 12 groups of observation machines. A report is also quoted in the article that in 1930 the U.S.S.R. held second place in the world in the number of war aeroplanes, aircraft factories, and trained pilots. The article repeats a statement that in the schools and factories the supervision is mainly German, and that Germany uses the U.S.S.R. as a training ground for her pilots because Germany herself has no flying corps in which war flying can be practised.

Hendon a Municipal Borough

THE Lord Mayor of London is to present Hendon's Charter of Incorporation as a municipal borough on September 26. Arrangements are being made for the celebration of Charter Day on a large scale, with an historic pageant in Hendon Aerodrome. Hendon has been an urban district since 1895.

The Fairey (Napier) Long-range Monoplane

ARRANGEMENTS are being made for Sqd. Ldr. Gayford and Flt. Lt. Bett to start from Cranwell on a non-stop flight to Capetown in the Fairey long-range monoplane if weather conditions along the route are considered favourable during the full-moon period between November 11 and 15.



SEA, LAND OR AIR : The Sikorsky (2 Wasps) of Mr. Francis Francis. The cabin is beautifully fitted, and this machine makes what is probably the most luxurious privately-owned aircraft in the country. It is in a similar Sikorsky that the Hutchinson family are flying to England, via Greenland, from New York. (FLIGHT Photo.)

Grierson Flies to Russia

MR. J. GRIERSON, who last year flew from India to England in 4½ days, left Lympne on September 2 in an attempt to fly to Russia in one day, and reached Minsk on September 4. He was forced down in the Rhine Valley by bad weather.

England-Australia Flight Concluded

LT. COM. G. A. HALL, of the Royal Australian Navy, who left Croydon on August 8 on a solo flight to Australia, reached Wyndham from Koepang on September 1. He was flying a Blackburn "Bluebird" ("Hermes II").

A Canadian England-Australia Flight

MR. HEBERT, a Canadian and a former director of the Montreal Aero Club, has—we are informed by Shell-Mex & B.P., Ltd.—under consideration a flight to Australia and expects to leave England on October 15. He will fly a "Gipsy I" engined "Moth," CF-ADC, and will take the normal route via Central Europe to Syria, then down the Persian Gulf and across India, through the Straits Settlements and the Dutch East Indies to Port Darwin. He will continue to Sydney, where he expects to arrive about November 20. In the middle of December he will ship his machine to Vancouver and will then fly across the American Continent to Montreal, his home.

"Graf Zeppelin"

THE German airship *Graf Zeppelin*, which left Friedrichshafen on August 29 for Brazil, reached Pernambuco on September 1. She started on the homeward journey on September 3.

The Bibesco Challenge Cup

It has been announced in Bucharest that Prince Bibesco, President of the Fédération Internationale, has presented a Challenge Cup for competition by carrying out a speed circuit of the world. We have received from Shell-Mex and B.P., Ltd., a copy of the rules and regulations governing the award of this cup, and we hope to publish these more or less in full next week. Meantime, it may be noted that the competition is open to all aircraft—heavier or lighter than air—representing the nationals of the countries which are members of the F.A.I., and the competitors will take the following course round the world, determined by the F.A.I.—either Paris, London, Berlin, Rome or Bucharest, thence Karachi, Tokio, San Francisco, New York, and again Paris, London, Berlin, Rome or Bucharest. The start may be made from any of the above places, and the finish must be at the same aerodrome from which the start was made.

A West Indian Flight

WE give herewith a short report from Cirrus-Hermes Engineering Co., Ltd., of an interesting Inter-Colonial flight recently made by Mr. Michael Cipriani from Trinidad (British West Indies) to St. Vincent, in his Hermes-engined "Moth." This particular Hermes-engined machine (shown in the accompanying illustration) is the only privately-owned aircraft in the British West Indies, and saw its original service in Canada. The flight was made over several hundred miles of open sea, and Mr. Cipriani expressed his complete confidence in his engine, although of an early production number. He is contemplating a flight to Caracas towards the end of the year, and is of the opinion that this will be as satisfactory as all his past flights have been. Mr. Cipriani was accompanied by Mr. Lickfold and arrived at St. Vincent on July 29 at

8.15 a.m., having left Trinidad at 6 a.m. A large number of people turned out to witness the landing of the first aeroplane in this island. They were greeted by His Honour Maj. H. W. Peebles, the Administrator. On July 30 Mr. Cipriani left St. Vincent at 8 o'clock and arrived at Barbados at 9.45. On Monday, August 1, they left to return to Trinidad via Grenada, passing from there due south to Port of Spain, where they landed at Piarco Aerodrome, having taken 3½ hr. from Barbados, flying against very strong head wind.

Flights to Africa

MR. M. BARTLETT is about to fly from England to Nyasaland in a "Gipsy I Moth" (G-AALS) via Paris, Lyons, Marseilles or Milan, Rome, Catania, Malta, Tripoli, Sirte, Benghazi, Mersa Matruh, Cairo, Wadi Halfa, Khartoum, Malakal, Juba, Nairobi, Moshi, Dodma, M'beya, Fort Jameson and Balantyre. Mr. Norman Turner is also leaving England this month for Kenya in the Wright "Whirlwind"-engined Waco VP-KAP, via the Tunis, Tripoli, Cairo and Khartoum route.

MR. H. W. SEAR, who flew to England from East Africa last Spring, has already left on the return flight in the wooden "Moth" (Gipsy III) VP-KAR. All three pilots, it may be mentioned, are using Shell fuel and oil.

By Air to Sunny Climes

WINTER air tours, of comparatively short duration, from England to warmer and sunnier climates are becoming more and more popular. Certainly, the aeroplane is the ideal medium for such trips. Mr. W. Lindsay Everard, M.P. for Melton, is just off for the near East in his "Puss Moth," G-ABDM, piloted by Miss Winifred Spooner. Another of Mr. Everard's "Puss Moths," piloted by Mr. W. D. Macpherson (the England squash rackets champion), with Mr. J. Wilson-Fox as passenger, and a third "Puss Moth," piloted by Mr. W. R. D. Perkins, M.P., will accompany Mr. Everard.

Mollison Abandons Return Atlantic Flight

MR. J. A. MOLLISON, complying with the wishes of his wife and Lord Wakefield, decided not to attempt to fly back to England from America, but to return by boat. He therefore flew from Sydney, Nova Scotia, to Quebec on September 1, and sailed for England in the *Empress of Britain* on September 3.

Maj. Doolittle Does Much

MAJ. JIMMY DOOLITTLE claims a world's speed record for landplanes by attaining a speed of 293.193 m.p.h. when flying a low-wing monoplane over four laps of a 3-km. course at Cleveland on August 31. The record—which was made during the eclipse of the sun—was unofficial, however, as he did not carry a barograph. During a second attempt next day he attained a speed of 302.16 m.p.h. on his fourth lap, but only just failed to achieve a record-breaking average over the whole course.

Italian High-speed Pilot Killed

IT is with very great regret that we learn that Lt. Neri, an officer of the Italian High-speed Flight, was killed in a crash on Lake Garda on September 6. Various accounts have been received of the type of machine which he was flying at the time; one called it a high-speed seaplane, another mentioned a regular biplane pursuit machine, while a third says the mechanic was also killed, thus suggesting a two-seater. Whatever the machine was,

a wing seems to have buckled at the end of a dive, and the machine crashed into the water. The pilot's body was recovered. Lt. Neri was understood to have hoped to lower the high-speed record of 407.5 m.p.h. set up by Flt. Lt. Stainforth, but no reliance could be placed on unofficial reports of the speed which he attained. The British casualties on high-speed work were Flt. Lt. Kinkhead in 1928 and Lt. Brinton in 1931.



A WEST INDIAN FLIGHT: Mr. Cipriani's "Hermes"-engined "Moth" at St. Vincent, after a flight from Trinidad.

The Industry

BAKELITE MOULDINGS

FOR the casing of instruments and electrical and wireless apparatus Bakelite is now as naturally used in aircraft as for endless common purposes, its lightness, durability and insulating properties rendering it ideally suitable. Most of the firms manufacturing electrical components for the aircraft industry have their own moulding plants. Bakelite laminated sheet for panelling aircraft cabins is also beginning to be seen, the Avro 10 being an example. An attractive finish, combined with strength and lightness, are the appealing characteristics for this decorative work. Sheet $\frac{1}{16}$ in. thick weighs 0.46 lb. per sq. ft. in all finishes except solid white, when the weight is then 0.57 lb. per sq. ft., corresponding weights for $\frac{1}{8}$ in. thick laminated being 1.8 lb. and 2.30 lb. per sq. ft. respectively. Bakelite material is a chemical product manufactured from two raw materials, namely, carbolic acid (a coal-tar product) and formaldehyde (a wood distillation product), both of which are liquids with strong odours. Under definite chemical conditions they combine to form a practically inodorous and inert solid body, which is classified as Bakelite Resin "A."

This body is an amber-coloured product soluble in alcohol, acetone and other organic solvents, which melts at about 120 deg. F., though continued application of heat converts it into an insoluble, infusible, transparent and amber-like body, which is called Bakelite Resin "C."

The Bakelite moulding materials, however, consist of the resin "A," incorporated (with various fillers) under controlled conditions, employing special plant. They have as their binding agent Bakelite synthetic resin. The filling materials referred to are usually wood flour and asbestos, the first because it gives mechanical strength and does not add to the specific gravity of an already light material; and asbestos because of its heat-resisting properties.

These moulding materials are supplied by the producers in powder form, ready for moulding in the user's plant. The latter consists of hydraulic presses fitted with heated top and bottom platens. Steam is considered the ideal medium for heating, because it is a self-regulating property. It automatically condenses and flows more rapidly with a lowering of the platen temperature resulting from absorption by the mould and loss by radiation. It is desirable to have the boiler working at a pressure of 150 lb. per sq. in., though it should be pointed out that it is the temperature of the steam at this particular pressure which is desired, not the actual pressure itself. The temperature should range between 325 deg. and 375 deg. F. In connection with the use of steam, the mouldings will not suffer if left in the heat for an excessive length of time, as steam carries its own safety valve, and

the ratio of variation of unit temperature to unit of pressure is very small as compared with gas or electricity.

Of course, electricity or gas can be used as an alternative to steam, but the latter has decided advantages. The pressure required to mould Bakelite material varies from 500 to 2,500 lb. per sq. in. of projected moulding area, depending upon the type of mould and the shape of the moulding. It is important to have the presses fitted with an operating valve for regulating the pressure and controlling it at any point, because, for example, some mouldings may not require more than, say, 500 lb., whilst others will require the maximum of 2,500 lb.

In all cases it is preferable to have the mould under comparatively light pressure until the mould is practically closed, when extreme pressure can be exerted and maintained until the moulding is complete. When the first moulding has been made, the mould is hot, and in this condition it can be recharged, but after charging, the mould must be got under pressure as speedily as possible, else the heat may cause the material to harden, and the chemical change will take place before the mould is closed. The consequence of this would be a faulty moulding and perhaps a damaged mould.

The period necessary for the mould to be under pressure varies according to the size and form of the moulding being produced. Generally it may be taken as from $1\frac{1}{2}$ min. for a piece weighing, say, $\frac{1}{2}$ oz., with corresponding increase of time for a moulding larger than this. This time period also depends upon temperature of the mould.

When mouldings are required to withstand exceptional stresses of their dielectric properties, or to withstand high temperatures, they may be stoved after moulding at 130 deg. C. from 48 hours to 70 or 80 hours, as may be found necessary.

Moulded parts may be drilled, tapped or otherwise machined, but as a rule this work can be provided for in the actual moulding operation.

Threads of reasonable strength and accuracy can also be moulded in the material.

All inquiries concerning the supply of Bakelite moulding materials and the technique of the manufacture should be addressed to Bakelite, Ltd., 68, Victoria Street, London, S.W.1. (telephone Vic. 5441).

FLEXO PLYWOOD

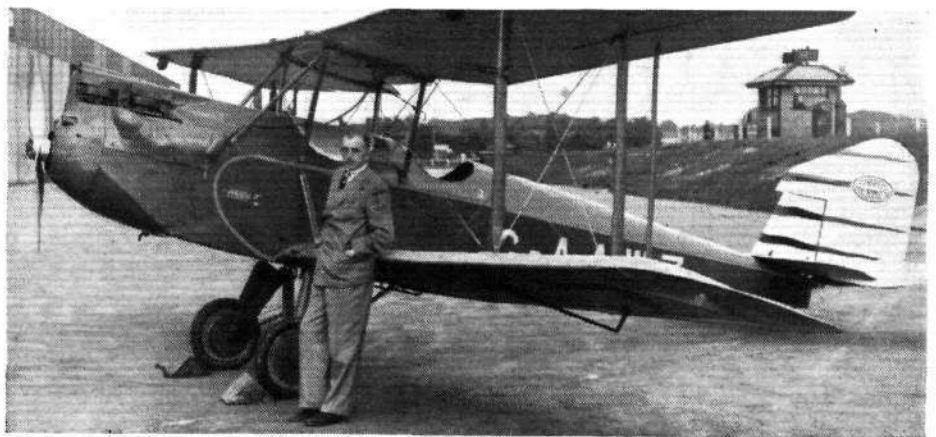
WHEN writing of plywood in these columns, we have mentioned several times that the glue employed for the adhesive process is the secret of each manufacturer, and is the feature that determines the quality of the plywood. This applies to the plywood known as Flexo, which is manufactured by Flexo Plywood Industries, Ltd., of South Chingford, E.4. Like other plywoods used in the construction of aircraft, Flexo conforms to B.E. specification 3.V.3, a full summary of which we have already published in the Industry section.

But the special claim for Flexo is that it is extremely flexible, or, alternatively, it is not brittle. This is due to the manufacturer's secret glue that is used. Contributing to the same result is the fact—applicable to the production of other plywoods—that before the sheets are glued and compressed they are subjected to a process which ensures that they possess specified moisture contents.

This makes certain that sheets of unequal moisture contents are not made up into three-ply. Flexo, which has been in production for the aircraft industry for about eighteen months, is being used extensively in the eight Armstrong-Whitworth "Atalanta" monoplanes to be employed by Imperial Airways, Ltd. About 60,000 square feet have been supplied by Flexo Plywood, Ltd., for this purpose. In the "Atalanta" this plywood covers the main plane and forward part of the fuselage along to the passenger cabin door, and is also used for the interior panelling and the ribs for the outer sections of the main plane.

Apart from producing Flexo for the British aircraft industry, the company has supplied it abroad, the Chilean Air Force being one foreign customer.

The company is associated with the Cork Manufacturing Co., Ltd., whose



The Cirrus-Hermes Engineering Co. whose latest engine the "Hermes IV" was described in FLIGHT for July 8, use a Spartan "Arrow" for their test work. Mr. J. V. Holman, their Sales Manager, is here seen beside the "Arrow." (FLIGHT Photo.)

works adjoin their own at South Chingford. The latter are the manufacturers of "Langite," which has been mentioned in our columns before. "Langite" is a very light cork composition that resists petrol, oil and benzol, designed for use in aircraft and elsewhere when rubber would not be suitable. As it is extremely resilient, it is useful for making joints between rough surfaces, because its resiliency enables it to fill depressions where leakages might occur.

Another feature of "Langite" is that it does not bulge when compressed, as rubber does. Compression has a reverse effect upon it, that is, decreasing its volume. As damping material for resisting vibration and noise when used between engines and their mountings and bosses and their holding-down bolts, "Langite" has another virtue.

FUEL & THE WEEK-END AERIEN

LIKE all the rest of the organisation during the Week-End Aérien, the supplies of fuel and oil were admirably arranged, and at no time was there any difficulty whatsoever in our visitors getting what they wanted. At every control representatives of each firm were ready with their supplies, and, moreover, many firms sent their aviation managers round by air. We noticed both the "Avian" and "Swift" of Shell-Mex-B.P., the "Puss Moth" of Prattis, and the

"Stinson" of Vacuum. The representative of National Benzol had unfortunately to travel with a friend, as his own machine was in the shops for its C. of A. overhaul.

COMMERCIAL TRAVELLING BY AIR

CAPT. H. S. ROBERTSON, Manager of the Export Aero Section of the Dunlop Rubber Company, and quite a well-known pilot, took off from Croydon Aerodrome in a "Puss Moth" recently. In twenty-eight days he proposes to visit thirteen European countries. They are Holland, Belgium, Switzerland, Czechoslovakia, Poland, Germany, Lithuania, Latvia, Estonia, Finland, Sweden, Norway and Denmark. By September 21 he hopes to be at Copenhagen for the British Exhibition being held there. In each he will call on the technical officials of civil and military air services and on aircraft manufacturers.

His journey, however, is purely a business affair, for his machine, provided by the company for his use, is fitted with the products of his firm—Dunlop tyres and wheels, including the recently introduced aircraft wheel brake (described in FLIGHT for June 24, 1932). At each port of call he will give demonstrations of this equipment. Thus once more we have a go-ahead firm utilising modern methods for their representative to cover his ground.

TELESCOPIC TOWER LADDERS

MANY of the telescopic tower ladders in use at aerodromes for reaching the engines and the higher points on large aircraft are manufactured by H. C. Slingsby, a firm that has specialised in ladders and trucks and similar handy equipment for a decade. On their telescopic ladders with projecting platform attached a man can reach a height of 34 ft. They are constructed of well-seasoned timber and fitted with hardwood rungs and a detachable undercarriage. Flexible steel wire ropes and winch winding gear can be installed if required, and levelling jacks brought into use to correct unevenness in the ground where the ladder is wanted. The company commends itself to notice from the aviation point of view for being the first to export some of their trucks by air. Their London office and showrooms are at 89, 95 and 97, Kingsway, W.C.2 (telephone, Holborn 2707).

K.L.G. PLUGS IN THE RUNDFLUG

L. T. ZWIRKO, the Polish airman, who won the *Rundflug* of this year, as described in FLIGHT, September 2, used "K.L.G." plugs. The following telegram has been received from him by K.L.G. Sparking Plugs, Ltd., of Robinhood Engineering Works, Putney Vale, London, S.W.15: "Highly satisfied with K.L.G. plugs. Zwirko."



Squash Court

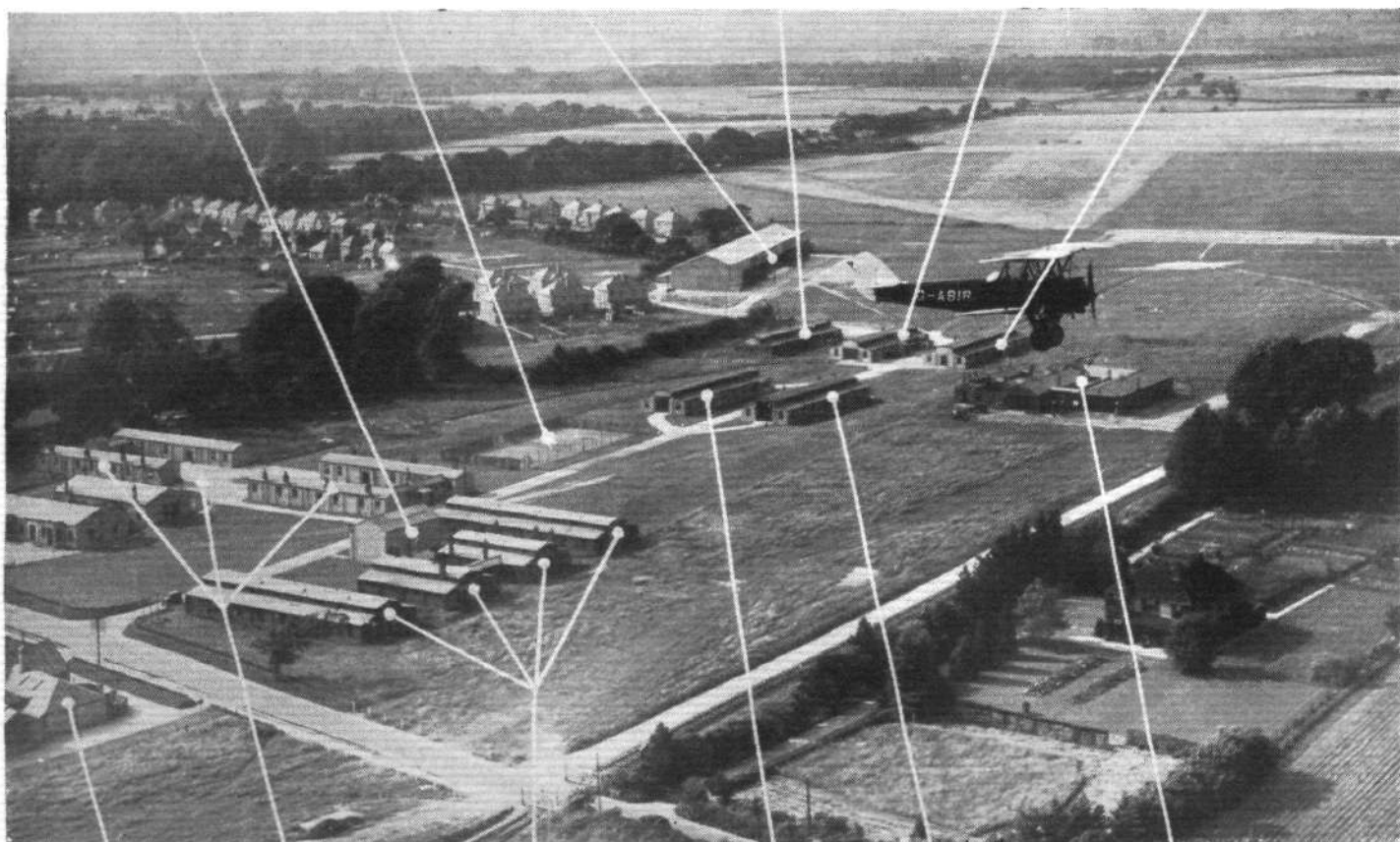
Tennis Court

Hangar

Weir Engineering Co.

Rigging and Navigation Lecture Rooms

Offices, Parachute, Wireless, and Signal Lecture Room



Air Service Training Club House

Pupil's Sleeping Quarters

Stores

Garage

Engine Repair Shop

Hampshire Aeroplane Club

The Air Service Training flying school at Hamble, near Southampton. (FLIGHT Photo.)

THE ROYAL AIR FORCE

London Gazette, September 5, 1932.

General Duties Branch

The follg. are granted short service comms. as Pilot Officers for four years on active list, with effect from and with seny. of August 16:—H. F. Boss-Walker, D. A. Gibson, J. W. B. Judge, A. G. F. Stewart, G. E. Strangman. The follg. Pilot Officers are promoted to rank of Flying Officer:—W. R. Farley, F. S. Wakeham (July 29); F. A. A. H. Strath (August 29).

Flt.-Lt. W. D. Gaidner, D.F.C., takes rank and precedence as if his appointment as Flt. Lt. bore date July 1, 1928, immediately following Flt.-Lt. E. M. C. Abel-Smith (Lt.-Com., R.N.), on the gradation list. Reduction takes effect from June 27; Flt.-Lt. W. V. Hyde is placed on half-pay list, Scale A, from August 8 to August 15, inclusive; Flt.-Lt. C. R. Smythe is placed on half-pay list, Scale A (August 24); Lt.-Com. F. W. H. Clarke, R.N., is re-attached to R.A.F. as a Flt.-Lt., with effect from August 14, and with seny. of January 1, 1929; Sqd.-Ldr. S. S. Benson, A.F.C., is seconded for duty with Imperial Japanese Navy (May 26); Flt.-Lt. C. P. O. Bartlett, D.S.C., is placed on retired list, and is permitted to retain rank of Sqd. Ldr. (August 26); F/O. R. C. I. Pearse is transferred to Reserve, Class A (August 31); F/O. R. A. Byrne relinquishes his short service commn. on account of ill-health (August 31); P/O. R. Mottershead is dismissed the Service by sentence of General Court Martial (August 3).

Stores Branch

Flt.-Lt. L. Smith resigns his permanent commn. (August 31); F/O. A. J. Walker resigns his permanent commn. (August 3).

Medical Branch

F/O. M. T. O'Reilly, M.B., B.Ch., is promoted to rank of Flt. Lt. (August 18).

ROYAL AIR FORCE RESERVE

RESERVE OF AIR FORCE OFFICERS

General Duties Branch

W. A. H. B. Burnside is granted a commn. in Class AA (i) as a Pilot Officer on probation (August 17).

The follg. Flying Officers are promoted to rank of Flt.-Lt.:—L. G. Gray, R. O. O. Taylor (February 4, 1931); F. Gower-Jones, W. T. Walton, H. B. Collins (August 19, 1931). The follg. Flying Officers are transferred from Class A to Class C:—C. H. Hockly (October 7, 1931); C. H. Morgan (July 8). F/O. A. C. Meredith is transferred from Class C to Class B (August 23); F/O. H. J. Penrose relinquishes his commn. on completion of service (August 29). The commn. of the follg. Pilot Officers on probation are terminated on cessation of duty:—R. C. Chilver (July 21); A. V. Lawes (2nd Lt., R.A.R.O. (General List) (August 6). *Gazette of June 7 concerning F/O. S. B. Atkinson is cancelled.*

Medical Branch

G. Dunderdale, M.D., B.S., M.R.C.S., L.R.C.P., is granted a commn. in Class DD as a Flt.-Lt. (August 18).

AUXILIARY AIR FORCE

General Duties Branch

No. 608 (NORTH RIDING) (BOMBER) SQUADRON.—M. J. C. Hutton-Wilson is granted a commn. as Pilot Officer (July 27); P/O. J. L. Clayton is promoted to rank of F/O. (August 7).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Wing Commander A. T. Harris, O.B.E., A.F.C., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 8.8.32.

Squadron Leaders: J. F. Gordon, D.F.C., to H.Q., Fighting Area, Uxbridge, for Personnel Staff duties, vice Flt. Lt. H. J. Collins, 16.8.32. H. M. Massey, M.C., to No. 209 (F.B.) Sqdn., Mount Batten, 28.8.32, for Flying duties, vice Sqd. Ldr. J. H. O. Jones.

Flight Lieutenants: J. L. M. de C. Hughes-Chamberlain, to No. 23 Sqdn., Kenley, 18.8.32. F. H. Woolliams, to R.A.F. Depot, Uxbridge, 15.8.32. H. H. Martin, to No. 45 Sqdn., Helwan, 1.8.32. F. E. Vernon, to R.A.F. Base, Gosport, 15.8.32. G. N. J. Stanley-Turner, to No. 502 Sqdn., Aldergrove, 16.8.32. C. C. Edwards, to R.A.F. Depot, Uxbridge, 2.8.32. F. H. Woolliams, to Central Flying School, Wittering, 20.8.32. D. V. Ivins, to R.A.F. Depot, Uxbridge, 29.8.32. E. C. Delamain, M.C., to No. 40 (B) Sqdn., Upper Heyford, 24.8.32. B. G. Farrow, to Station H.Q., Boscombe Down, 30.8.32. J. W. Gillan, to Station H.Q., Upavon, 30.8.32.

Flying Officers: R. Chadwick, to R.A.F. Depot, Uxbridge, 27.7.32. R. B. Councell, to R.A.F. Depot, Uxbridge, 19.7.32. H. M. Pearson, to R.A.F. Depot, Uxbridge, 27.7.32. D. G. Singleton, to R.A.F. Depot, Uxbridge, 2.8.32. N. H. Fresson, to No. 28 (A.C.) Sqdn., Ambala, India, 21.7.32. W. R. Monro Higgs, to No. 20 (A.C.) Sqdn., Peshawar, India, 30.7.32. L. V. G. Barrow, to No. 503 (County of Lincoln) (B) Sqdn., Waddington, 16.8.32. H. A. Simmons, to No. 401 (F.F.) Flight, 24.8.32. D. D. Christie, to No. 4 Flying Training School, Abu Sueir, Egypt, 19.8.32. P. F. Foss, to No. 202 (F.B.) Sqdn., Malta, 20.8.32. R. Louis, to R.A.F. Storage Section, Cardington, 24.8.32. W. D. Butler, to School of Army Co-operation, No. 16 (A.C.) Sqdn., Old Sarum, 30.8.32. P. Kinney, to Cambridge University Air Sqdn., 30.8.32. C. Stephenson, to No. 26 (A.C.) Sqdn., Catterick, 30.8.32. R. C. Dawkins, to R.A.F. Base, Gosport, 26.8.32.

Pilot Officers: R. J. Berens and S. J. Marchbank, to No. 7 Sqdn., Worthy Down; F. C. de la P. Beresford-Peirse, to No. 33 Sqdn., Bicester; J. Bradley

and R. A. C. Carter, to No. 41 Sqdn., Northolt; C. Broughton, to No. 111 Sqdn., Hornchurch; H. P. Burwood and H. Y. Humphreys, to No. 9 Sqdn., Boscombe Down; R. E. de Penheny O'Kelly, R. J. Gosnell, C. R. D. L. Lloyd, C. C. Morton, M. H. Rhys and T. U. Rolphe, all to No. 16 Sqdn., Old Sarum; D. R. Evans, to No. 23 Sqdn., Kenley; T. G. L. Gale, to No. 207 Sqdn., Bircham Newton; B. H. Gully and H. G. Leonard-Williams, to No. 58 Sqdn., Worthy Down; D. J. P. Lee, to No. 35 Sqdn., Bircham Newton; J. R. A. Peel, to No. 19 Sqdn., Duxford; R. H. Shaw and D. R. Shore, to No. 10 Sqdn., Boscombe Down; W. E. S. Tanner, to No. 1 Sqdn., Tangmere; A. N. Combe and D. Michell, to R.A.F. Base, Calshot; all posted to the units shown on appointment to permanent comms. from the R.A.F. College, with effect from 23.7.32. W. E. Oulton, to No. 202 (F.B.) Sqdn., Malta, 19.8.32. L. F. J. Taylor, to No. 32 (F.) Sqdn., Kenley, 23.8.32.

Stores Branch

Squadron Leader K. D. G. Collier, to H.Q., Coastal Area, Lee-on-the-Solent, 15.8.32.

Accountant Branch

Flight Lieutenant D. J. Sherlock, to Station H.Q., Donibristle, 15.8.32.

Flying Officers: D. C. Stone, to No. 35 (B.) Sqdn., Bircham Newton, 22.8.32. C. F. G. Rogers, to Anti-Aircraft Co-operation Flight, Biggin Hill, 29.8.32.

NAVAL APPOINTMENTS

The following appointments have been made by the Admiralty:—

Promotions

Lieut. (F/O., R.A.F.).—A. O. Watson to rank of Lieut.-Commr. (seny. Aug. 30).

Sub-Lieut. (F/O., R.A.F.).—R. D. L. Dickson, to rank of Lieut. (seny. June 16).



SOUTH AFRICAN AIR FORCE'S PUNITIVE EXPEDITION: The picture shows the arrival at Windhoek, the capital of the Mandated Territory of South West Africa, of "Wapiti" aeroplanes sent by the Union Government to deal with disturbances in the native territory of Ovamboland. The expedition was led by Sir Pierre van Ryneveld, K.B.E., D.S.O., who will be remembered as the first man to fly across Africa, and who is now Director of Aviation in the Union. The rebellious chief was speedily quelled, though the bombs only caused casualties to his cattle.

CORRESPONDENCE

The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.

ENGLAND-AUSTRALIA AIR MAIL.

[2809] In your issue dated May 27, 1932, on page 468, you quote *The Times*, which apparently published a statement that this company refused to undertake the building and repair of aircraft for use on the proposed Australia-England service, because the undersigned was being given a subordinate position in the scheme. We hasten to contradict this statement.

The correct position is that one of the representatives of the proposed combine promised to submit a proposal to us for consideration. We have signified our willingness to consider such a proposal. At the time of writing, however, it has not been received.

Whilst on this subject we would mention that it is the policy of this company to advocate the calling of tenders for all aerial mail contracts and renewals.

The matter of a position in the proposed combine for the undersigned has not been discussed, and we state quite emphatically that the negotiations have not been interrupted by this company.

We would be obliged if you would kindly publish this correction.

LARKIN AIRCRAFT SUPPLY CO., LTD.

A. LARKIN, Managing Director.

Melbourne, July 22, 1932.

WEIGHT OF SMOOTH DOPE FINISHES.

[2810] We note in an article in your issue of July 22, dealing with the products of a well-known firm of aeroplane dope manufacturers, a statement that the high gloss finish on the fabric-covered fuselages of some machines makes them much heavier than when doped with an ordinary standard finish.

There is a remote possibility that this "weighty" statement may discourage owners from specifying Titanine "Satin Finish" on their machines, though we do not suggest for a moment that it was made with this intention. If such a statement needed refutation it surely is to be found in the fact that one of the many "Puss Moths" treated with Titanine "Satin Finish" (the "car" finish for aeroplanes) was used by Mr. Mollison on his Atlantic flight, a venture upon which we have no doubt he considered that any slight increase in weight that might be necessary to produce the smooth "Satin Finish," by which friction is reduced to a minimum, was well worth it. We have not the figures available of the actual increase in weight on this machine over "normal" doping, but in general it may be said that the "Satin Finish" effect can be obtained from a dope deposit which is not in excess of that found on many machines in general use, which are doped with older-fashioned schemes leaving a rougher surface.

For Titanine-Emallite Limited.

T. W. H. WARD,

(Managing Director).

London, August 22, 1932.

AIRCRAFT MODELS AT THE MODEL ENGINEERING EXHIBITION

MODEL aircraft and their makers are well represented at the fourteenth annual Model Engineering Exhibition which is taking place at the Royal Horticultural Hall, Westminster, until September 10. A large variety of models is exhibited by Warneford, of Greenwich, S.E.10, who are now producing a new type called the "Silver Flash." It is a monoplane made entirely of a metal which is neither aluminium nor duralumin, but a "secret" metal, the nature of which is not disclosed. Special features of the "Silver Flash" are the folding wing, which is also adjustable, and full adjustment of the tail plane and rudder. Its weight is $\frac{1}{4}$ oz., and its performance is claimed to be as follows:—Speed 10 m.p.h., distance of flight 150 ft., and ceiling 20 ft. It will also rise from the ground. Warneford's produced over half-a-million models last year.

The Model Aircraft Club, of which Mr. A. E. Jones, the manufacturer of models, is Hon. Secretary, reveals some interesting and capable work of its members, while on the stand of the Society of Model Aeronautical En-

gineers are several imposing types designed by Capt. C. E. Bowden, R.A.S.C. Amongst them is the "Bowden Gull," a large low-wing cantilever monoplane fitted with a 14-c.c. special Westbury "Atom Junior" 2-stroke engine. The weight of this engine with the tank and propeller is 1 lb. 8 oz.

Ignition is obtained with a torch battery and coil. The accumulator is plugged in on the ground for starting up and a clock is fitted to the model to regulate the duration of flight by mechanically switching off the engine. This monoplane has a wing span of 9 ft., a wing area of 8.3 sq. ft. and overall length of 47 $\frac{1}{2}$ in. The total weight is 8 lb. 2 oz. and wing loading 14.4 oz. per sq. ft. The machine can be fitted with a small camera for obtaining aerial photographs.

Capt. Bowden shows another large petrol-engined model known as the "Kanga," which holds the British record (unconfirmed) for petrol-engined models. This was obtained with a flight of 1 min. 11 sec., which can be automatically improved upon by regulating the clock which closes the engine throttle. The "Kanga" has a Westbury 20-c.c., 2-stroke engine, and is a biplane. Wire-less control can be experimented with on this model.

A. J. Holladay & Co., Ltd., of 3, Aldermanbury, E.C.2, exhibit cheap toy types of popular aircraft designed to introduce the youthful beginner to the making of models. They do not fly, but they teach a boy how the major parts of models fit in relation to each other. The sections are made of mahogany and brass and are very easy to assemble. Incidentally, a beautiful model of the four-masted barque "Port Jackson" on show was made by Mr. G. M. Cox, a flying instructor at the de Havilland Flying School at Hatfield.

National Aviation Day Displays

DISPLAYS in connection with Sir Alan Cobham's National Aviation Day Campaign will be held as follows:—

Sept. 10 and 11, Edinburgh, Silverknowes, Davidson's Mains; Sept. 12, Lanark, Westbank Farm; Sept. 13, Alloa, The Old Aerodrome; Sept. 14, Buckhaven, Banbeath, Windygates-Leven Road; Sept. 15, Anstruther, Rennyhill; Sept. 16, Haddington, Lennoxlove Acredales, Gifford Road; Sept. 17 and 18, Glasgow, Moorpark Aerodrome; Sept. 19, Falkirk, West Mains Farm, Grangemouth Road; Sept. 20, St. Andrews, Balgove, Cupar Road; Sept. 21, Perth, Woodhead of Mailer; Sept. 22, Inverness, Seafield, Longman Road; Sept. 23, Fraserburgh, Mid-Ardlaw, New Pitsligo Road.

Fireproof Dress

BEFORE a number of scientific witnesses Mlle. Suzanne Biget, of Lille, wearing a costume of her own invention made principally of asbestos treated with a special liquid, was wrapped in cotton wool, soaked in petrol, and set on fire; she came through the ordeal none the worse.

The fireproof dress is reported to be specially designed for aeroplane pilots.

PUBLICATIONS RECEIVED

Questions and Answers in Meteorology. Commonweal Press, Ltd., 43, Chancery Lane, London, W.C.2. Price 2s. net.
Department of Overseas Trade Reports: No. 522. Economic Conditions in Switzerland. By Major H. F. Heywood, M.C., May, 1932. Price 1s. 6d. net.
No. 523. Economic Conditions in Sweden. By W. J. Glenny, O.B.E., April 1932. Price 2s. net.
No. 524. Economic Conditions in Syria. By Sir Harold E. Satow, K.C.M.G., O.B.E., May, 1932. Price 1s. 6d. net. London: H.M. Stationery Office, W.C.2.

NEW COMPANY REGISTERED

LINCOLNSHIRE AERO CLUB, LTD.—Capital, £2,000 in £1 shares. Objects, to promote and encourage aerial navigation in all its forms and the study of aeronautics; to establish and maintain a club. Directors:—C. A. B. Turner, 9, Eastwood Avenue, Grimsby, motor engineer. C. B. H. Fisher, 46, Bradford Avenue, Cleethorpes, fish merchant. H. A. Baskomb, Nunsfield, Bargate, Grimsby, trawler owner. L. S. Tindall, 25, Connaught Avenue, Grimsby, air pilot. J. W. Swaby, Nuns Corner, Grimsby, draper. T. H. Felton, 26, Cumberland Avenue, Grimsby, dental surgeon. F. R. Lloyd, 15, St. Helens Avenue, Grimsby, motor engineer. Secretary:—D. R. Lazenby. Solicitor:—W. H. Sykes, Grimsby.

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motors. (The numbers in brackets are those under which the Specification will be printed and abridged, etc.)

APPLIED FOR IN 1931

Published, September 8, 1932.

- 13,088. G. R. BROOKS. Screw propellers. (378,409).
- 13,389. BENDIX AVIATION CORPORATION. High-pressure lubricating systems. (378,441).
- 14,454. S. DAIDO. Air-admission device for air-cooled Diesel engines. (378,522).
- 14,649. L. MARMONIER. Gyroscopic stabilising-apparatus. (378,545).
- 17,474. A. FERRARIO. Screw propeller with automatic regulation. (378,591).
- 21,137. BARR & STROUD, LTD., and J. M. STRANG. Adjustment of rangefinders used as height-measurers. (378,626).
- 22,603. J. DE KORWIN. Flying machines. (378,641).
- 35,611. H. SINCLAIR. Superchargers for i.c. engines. (378,754).